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## The pocket is the computer?

When we were all just a shade younger, computers were enormous and sitarots — locked away in "glass houses" in corporations, sheltered by large MBS departments, and cooled by heavy-duty cooling systems.

Of course, today we don't think twice about shoving powerful computers into our briefcases or our vinyl pockets, taking massive computing power with us wherever we go. And while polyester and corduroy may sadly be making a comeback, the old ways of command-and-control computing never will.

Moreover, the near-future is destined to be just as revolutionary as the next year. But it doesn't take a crystal ball to catch the main themes: faster, smaller, more powerful, more pervasive.

The over-flagged slogans of the industry leaders echo and herald this trend. Consider: "Information at your fingertips," "The network is the computer," "Where do you want to go today?" The phrases may be trite, but the reality is Computing isn't just key to our infrastructure; it's well on its way to becoming integrated into nearly every facet of our lives.

This technology is enabling societal trends such as telecommuting, or more aptly perhaps — telework. I had the privilege of introducing Bob Porter, president of the Canadian Telework Association, at the recent Convateq '98 show in Calgary. He defines telework as "employees performing part or all of their work from remote locations, mainly from home." According to Statistics Canada, more than one million Canadians already qualify, and that number is expected to jump to 1.5 million by 2001. Porter said half of the jobs in the nation are at least partly "tele-workable."

The positive aspects of telework for employees include flexible hours, freedom of residence, less commuting, potential tax benefits, reduced childcare costs and more time with family. Organizations report more productivity and better morale from employees, as well as reduced overhead.

These workers are demanding sophisticated technology, in the form of processing power, capable peripherals and fast, reliable communications connections. Even the so-called "entry-level" systems are quite remarkable for their sheer com-

pating strength. For our picks of notable entry PCs, see this issue's CCW Lab Test, on page 34.

Teleworkers also need serious support. Technology support by its very nature can seem a somewhat thankless job — at best, users are unhappy because they've encountered problems with their technology. But never underestimate the power of positive support. Users who have their problems handled skillfully, sensitively and quickly can be rapidly transformed into the rapturous "satisfied customers." Sadly, this industry still has a lot of work to do on that front. See our special feature on service by contributor Paul Lima ("A Question of Service," page 28).

Like most technologies, many of the folks at Canada Computer Paper Inc. are rather fixated technology-wise, with all things small. On any given day, expect to see us toying with some sort of computing device that fits into a briefcase, a purse or a pocket. This year's hardware feature focuses on handhelds and PDAs. (Please see "A handful for the handhelds?" on page 28, by Associate Editor Jeff Evans.) We're not alone in our interest in the category. I'm amazed to see the number of general citizens proudly sporting some sort of handheld computer these days, particularly the Palm Pilot. And with such enthusiasm! Their fanboys seem only that of the Mac devotees in their heyday. I've pondered the worth of Palm owners to the line and can only attribute it to an appreciation of a genuinely useful computing device, further warmed by the still-endearing "geek" factor. What other computer really doubles as a Star Trek tricorder? (I'm not kidding, you can download the program, complete with lifelike beeps!)

But I don't rule out the Windows CE platform. User-friendly enhancements are arriving in the second version of the operating system, and demonstrated thought is going into some of the new products.

There's still a battle raging in the minds of consumers, pitting power against size and weight. Someday nanotechnology will virtually eliminate the idea of "trade-off" on this front. Meanwhile, it's fascinating to watch the manufacturers struggle to deliver the optimal mix of functions and form.

Enjoy the issue. —GM

Gretz Cassman  
Editor

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**Fujitsu is a player!**

I was quite disappointed when looking at CCW's April '98 printer feature (page 38), and not seeing Fujitsu listed as one of "The Players."

In fact, Fujitsu PhotoPrinters have received Editor's Choice awards and accolades from two of your sister publications — *De Computer* (April) and *Toronto Computer*.

We produce enjoy a reputation for quality and reliability beginning with the Fujitsu two-horse dot-matrix printer family, one of the leading Canadian brands for more than 10 years. Our PhotoPrinters have products continue this tradition, and have quickly become recognized for their attractive price performance as well as offering one of the lowest costs of ownership in their category. With ever faster and more feature-rich lasers on the horizon, we expect to be a player for many years to come.

*Using Fujitsu*

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**Letters To The Editors**

We welcome your letters on industry issues and concerns, as well as your comments on our magazine. We reserve the right to edit your contributions for length and clarity. Please write to the editor, via e-mail or fax, or mail: (804) 260-3890.

**Windows 98 can't beat the Mac OS**

If you need more hardware column ("Windows 98: A step up, but mostly so," CCW April, page 52), then again, Microsoft is not in a position improving its operating system, and is also getting further behind Apple innovations, and real improvement. Mac OS 8.1: Why do people write so much about a Windows system "update" when there is so little to talk about?

You didn't write about the "true" support for multiple displays. You probably already know that this has existed on the Macintosh for a long time. The first Mac I worked on was a IIx — with two monitors. This was 10 years ago!

Anyway, I really switched to Macintosh a couple of years ago and since then now, I spend a lot more time using and enjoying the Mac rather than trying to make a Windows based machine work properly with a crappy operating system. But again, nobody writes about that.

**Michel Deloix**  
graphic designer  
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**Don't take customers for granted**

I wanted to drop you a note to thank you for the article at issue "Reading Customer Relationships" (CCW January by Manta Kerr, page 52). I recently started a new VAR business in Abbotsford, B.C., and one of the truths that the only way to compete in this marketplace is to be extremely customer-oriented.

This philosophy should be a self evident truth but when you look around at the various VARs and computer retailers out there (I won't name names) it's amazing how often the customer is taken for granted. Hopefully our business can take advantage of this need in the marketplace and serve as a role for ourselves.

**Paddie Stauffer**  
Future Technologies  
Abbotsford, B.C.  
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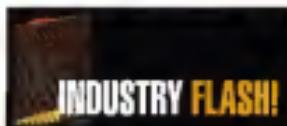
The advertisement features a large globe in the center, with a bright starburst effect above it. In the upper left corner, there is a circular logo for "Compaq V-Macintosh". Below the globe, the text "Powering the 21st century" is written in red. At the bottom, there are several pieces of computer hardware, including a monitor, a desktop tower, and a laptop. In the bottom left corner, there are small icons for various software titles like Quake, Doom, and Warcraft.



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## SAP delivers "fixed cost" 16-week solution

SAP Canada Inc., a provider of client/server business applications for enterprises, is offering a packaged version of its technology called SAP Accelerated Enterprise and Accelerated Financials.

While the SAP average implementation these days takes about eight months, this packaged solution can be implemented in 16 weeks at one fixed cost, said Pat Hickey, director of accelerated solutions for SAP Canada. The exact cost structure hasn't been announced yet, but it's meant to attract organizations as small as \$10 million in annual revenues. SAP's implementation partners for this solution include ICS, Deloitte & Touche, OracleLogic and IBM, and hardware partners, including IBM, Compaq, Digital and HP.

## Sun Microsystems files two injunctions against Microsoft

(NBB) — Saying company experts have just finished examining Microsoft's latest implementation of Java on Windows 98, Sun Microsystems Inc. announced requests for two preliminary injunctions based on alleged violations of a Java licensing agreement.

Rather than prevent Microsoft from shipping Windows 98, Sun wants Microsoft to

change Windows 98 to meet an original licensing agreement. Alan Bentz, president of Sun's Java Software division, said Sun demands "One, that Microsoft ship Windows 98 with a fully compatible version of the Java technology. Or, two, if they continue to ship their incompatible implementation of the Java technology in Windows 98 that they be required to ship Sun's Java runtime environment also bundled with that product. Or, three, that Microsoft simply remove any incompatible version of the Java technology from Windows 98."

The second preliminary injunction requests that Microsoft's tools for building Java applications be allowed to ship only if those tools create fully compatible Java applications.

Tom Bert, associate general counsel for Microsoft, said "Microsoft is in compliance with our contract with Sun. We will establish that in court. The timing of [the] enforcement appears to be intended to seize maximum publicity and not oriented towards achieving any justified legal relief."



### The luck of the draw!

Carl Bass and Frank McShay (not pictured) Computer City (Futura II G) were out on the town in Las Vegas recently courtesy of Canadian Computer Distributor's big gateway to Comdex/Fachin



## Latest Intel 440BX Chipset, supports CPU up to 550MHz, 100 MHz Bus clock and more...

The EPoX EP-B440BX-M, also named as BAA, is based on the intel 440BX chipset, a PCI set offering 100MHz Bus Clock, supporting single Slot-1 Pentium® III or Deschutes CPUs operating at 233-550 MHz. BAA also contains with many

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- Three 168 pin DIMM sockets for 3.3V unbuffered DRAM modules support SDRAM, EDO DRAM
- Supports up to 384MB MAX 16, 16, 32, 64, 128MB EDO or SDRAM and ECC function
- ATX form factor, One AGP slot, Three PCI slots and Two ISA slots



#### ITx

- Supports 60, 65, 69, 66, 75°, 83°, 100MHz CPU external clock speeds
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- Au/Altoxin 5 chipset supports Ultra DMA/33 IDE protocol, ACPI and AGP 60/133 MHz (Slideband) 3.3V device
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- Supports Pentium® processors and Pentium® processors with MMX™ technology, AMD K5™ /K6™ /Cyrix 6x86™/6x86LL™ /6x86MX™ IDT WinChip C6 processors
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- Two 168-pin DIMM sockets for 3.3V unbuffered DRAM modules support SDRAM, EDO DRAM, and Four 72-pin SIMM sockets support EDO & FP modules, up to 256MB
- Baby AT form factor, Three ISA slots, Four PCI slots



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- ATX Form factor One AGP slot Four PCI slots and Three ISA slots

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## Macintosh market Quicken, in more ways than one

On May 5, Apple Computer Inc. and Intuit jointly announced that Intuit would continue to actively develop the Mac version of its Quicken financial software.

Intuit has had a close strategic relationship with Apple for many years (including an Intuit executive on the Apple board of directors), so when it was recently disclosed that Intuit was not planning a simultaneous new Mac version of Quicken while a new Windows version had been announced, many observers took that to be a bad sign of slipping third-party developer support for the struggling Mac platform. Coming at a time when other Apple news was generally upbeat, the Intuit announcement took some of the sheen off the "new" Apple Computer Inc.

According to Mark Gomes, senior vice-president of Intuit's Consumer Division: "Now having seen what Apple is planning for consumer products, we're thrilled to

announce continued support for the Macintosh."

This rather cryptic statement became easier to understand when immediately afterward, Apple unveiled its latest generation of new Macs. On May 7, interim CEO Steve Jobs announced four new lines of Macs, led by the iMac — a high-powered consumer desktop PC. The iMac features an interesting "all-in-one" ergonomic design with a built-in 15-inch monitor, a high-powered "Penman-class" G3 chip, and easy Internet connectivity. Casual prices are expected to be in the \$1359 range. The new PowerBook G3, with full desktop replacement power will start at \$3,399.

According to Jobs: "These new products truly give people what they want now, a lightning fast notebook and a striking new consumer Macintosh. Apple truly when it expresses its vision through its products, exciting you and making you proud to own a Mac."

## New DVD standard proposed by industry consortium

According to reports from the U.S., a consortium of the Circuit City Stores Inc. retail chain and the California law firm of Ziffren Britton, Britton and Fluehr is aiming to replace the current DVD (Digital Versatile Disk) format with a proprietary Digital Video Express (DVE) format.

DVE would be used for entertainment "software" (mainly digitally recorded feature films and videos), and would require a special DVE player. DVE players would come with a built-in modems, and when the user attempted to play a movie disk, the DVE

player would call a 1-800 number, and request users to pay a fee each time they watch a movie.

The "rental" fees would be split between the copyright holder of the movie (mainly U.S. film studios and broadcasters) and the partners in the DVE consortium.

DVE would tend to avoid copyright protection and also done increased revenue to the studios. For end-users, the benefits are not so clear.

For more information, visit <http://www.dve.com/dv6.htm>.

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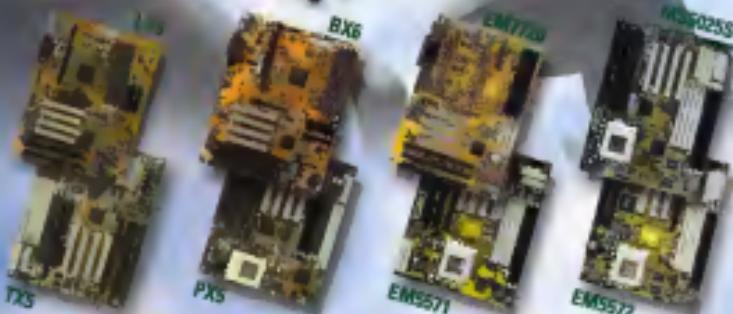
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## **Lotus alters channel structure**

Lotus Development Canada has announced a series of changes to the structure of the company's reseller and retail channel.

For starters, Lotus and IBM Canada channel staff joined forces to streamline the ordering process for shrink-wrapped software. By the end of this year, distribution and retail partners will be able to order all products from a single site.

Over the next six months, Lotus says it will be launching a series of incentives for channel partners, with a focus on the retail sector.

## **Win 98 graphics support will enable video features**

Canada's ATI Technologies Inc. claims major new graphics display options will be made possible with the release of Windows 98, expected in June.

Windows 98 will allow multi-monitor support, but an additional PCI graphics card is required for each extra monitor. Multi-monitor support requires software that has been written to take advantage of this option. Typical applications include professional graphics and animation (where one monitor displays an image, and another is used for menus, tools and other user interface display data), desktop video, games, videoconferencing, DVD video playback, WebTV for Windows, and enhanced television/Web content.

According to a recent study by International Data Corp. (IDC), ATI was rated the number one graphics-card maker in the 2D/3D graphics accelerator card market, with almost six million graphics cards shipped in 1997. IDC figures indicated a worldwide market for 20 million add-in accelerator cards in 1997, which is expected to grow to 29 million in 2002. See <http://idc.ca> or [atitech.com](http://atitech.com).

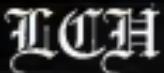
## **Be a virtual ISP with new UUNET Canada program**

UUNET Canada says it will offer a Virtual Internet Provider (VIP) dial-up program to allow companies to resell under their own name, UUNET's Internet dial services to individual users.

"Through the VIP program, companies can offer their customers Internet access services with roaming capability without the responsibility or expense of building and maintaining a network infrastructure," explained Sean Macomber, UUNET Canada VIP product manager.

The VIP program is targeted for ISPs that don't want to maintain their own network, but want to provide Internet access under their company name. Other potential customers include companies who want to provide Internet access as a value-added service for their customers. For example, a bank could offer Internet access along with internet banking; or a software company could offer Internet access for OEMs, distributors and end-users to use to access updates.

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## Canadian PC sales grow in Q1, consolidation continues

According to IDC Canada figures, unit sales of PC systems increased strongly during 1997, and even more striking was the surge in sales of the big four PC vendors.

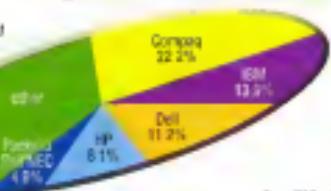
Total Q1 '98 PC sales were 550,000. Of those, 121,800, or 22.2 per cent were sold by Compaq, 76,400 or 13.9 per cent by IBM, 61,800 or 11.2 per cent by Dell, 44,300 or 8.1 per cent by HP, and 37,000 or 6.7 per cent by Packard Bell NEC.

Compaq's unit shipments grew 63.7 per cent in Q1, compared to last year. IBM PC sales grew by 20.3 per cent. HP's sales grew 60.5 per cent, and Dell sales jumped an

amazing 93.1 per cent.

According to IDC, "The trend towards consolidation in the top tier of the Canadian PC market was further evidenced in the first quarter. The top five vendors now hold 60 per cent of the market, up from 48 per cent a year ago." These figures were based on IDC's preliminary April 1998 estimates.

Q1 '98 Canadian PC sales, 550,000 units



SOURCE: IDC CANADA

Total Q1 '98 PC sales were 550,000. Of these 121,800 were sold by Compaq, 76,400 by IBM, 61,800 by Dell, 44,300 by HP and 37,000 by Packard Bell NEC.

## Business without boundaries?

Many aspects of business in the 21st century will be conducted with an integrated mix of computer, telephony and networking technology. That's "business without boundaries," according to Simon Way, Microsoft Canada's general manager. He defined a keynote speech at CTI World '98, describing the Microsoft vision of a convergence of growing together, of telephone and computer technology.

Way quoted a prediction that within five years, five to 10 per cent of all voice traffic will be transmitted over data networks. Microsoft is positioning itself as the centre of the new model of computer-telecom

convergence, through its Windows NT server technology. In collaboration with partners such as Digital and Northern Telecom, Microsoft is ensuring interoperability of the NT version of Digital's Signaling System Number 7 product (DSS7), with the worldwide SS7 standard. The latest version 3.0 of the Windows Telephony Application Programming Interface (TAPI) will enable voice, data and video collaboration over LANs, WANs and the Internet.

The result of all the CTI initiatives underway from Microsoft and its partners will be a rapidly evolving capacity for businesses to integrate telephone functions as part of an overall network solution. ■

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by Jeff Evans

# HP Makes Big Notebook Market PUSH

**A**s the consolidation of the notebook computer market has increased to the point where IBM, Toshiba and Compaq are eating up over 60 per cent of the Canadian notebook pie — the pressure on the smaller players outside the Big Three has also grown.

The message to the little guys: get big or die.

Dell Computer Corp., with its direct sales model (increasingly conducted via the Internet) became a major success story. NEC faced intense pressures on its market share, struggling to maintain it in an ever-flatter market. Hitachi and Sharp announced major new initiatives in the North American notebook market, with Sharp committing to a major investment in North American manufacturing assets. Following its absorption of the Texas Instruments notebook line, geared up for its own life-or-death bid to quickly grow its brand share. And Hewlett-Packard, one of the top three in global business desktop PC and workstation sales, has also chosen 1998 as its make or break year in the notebook computer market.

HP spent much of 1997 and 1998 quietly developing the technologies, products, channel strategies and support infrastructure for its major bid to become the "other" major brand in the notebook market, along with IBM, Hitachi and Compaq.

### Drool Factor, Down Time and Distribution

In a strategic alliance with Matsushita, HP gained access to leading-edge notebook technology. HP decided that in order to be a serious player, it needed to offer a full range of notebook products, from budget, entry level models to state-of-the-art, premium business notebooks for power users with big budgets. High-end notebooks from IBM and Toshiba often cost up to \$30,000 and have a limited market share. But they often command a larger profit margin than mainstream models, and add a reputation for no-compromise quality and neat finishes. That's the so-called "drool factor" that attracts power users and helps to build the reputation of a brand.

As well, HP has devoted a great deal of its engineering and manufacturing expertise to addressing one of mobile computing's greatest weaknesses: reliability. According to Doug Gurnett of HP Canada, the new line of notebooks have been made rugged enough to achieve up to 10.70 per cent decrease in down time due to hardware or software failures. As well, HP is offering extremely comprehensive warranty coverage, both in Canada and internationally, to ensure that if an HP notebook goes down, it will be back in service quickly.

HP recently showed off its new line in New York. According to HP representatives, HP sees the new line as offering solutions across the business spectrum, from small businesses to large enterprises. With the new notebook line complementing HP's other established product categories, from graphics to servers, data back-up, server, desktop PC and handheld computing solutions, HP can claim to have the most comprehensive product line for the business computing market.

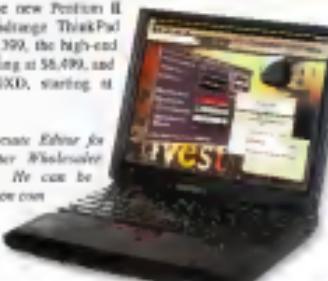
For more information, contact <http://www.hp.com>

### PC Industry gears up to 400MHz Speed

The recent release of a number of new Intel processors has resulted in a flood of new high-end PC and server products based on the new Pentium II 350MHz and 400MHz processors, and a modest trickle of low-cost "basic computing" business desktops based on the new Intel Celeron chip. As well, the earlier release of mobile Pentium III 233MHz and 366MHz chips has sparked a major refreshing of most notebook makers' product lines.

IBM and HP have announced full lines of new business desktops, personal workstations and servers based on the new 350MHz and 400MHz processors. In the consumer field, the initial high cost of the processor will tend to limit the appeal of the latest chips to the premium multimedia segment of that market. For example, on May 5, HP Canada announced the HP Pavilion i290 PC, featuring a Pentium II 400MHz processor. HP claimed that the Pavilion i290 was the first 400MHz retail PC to hit Canadian store shelves.

With 64MB of SDRAM, a 12GB drive and DVD-ROM drive, the estimated street price of the HP i290 (not including monitor) is \$3,999. Endorsement for "basic computing" business desktop PCs equipped with the Celeron processor was noted. A HP representative admitted the company will offer the Celeron-based models for about three months, and then, depending on market response, will decide how much emphasis to continue placing on PCs based on that processor.

On the notebook PC front, the new Intel mobile Pentium III was immediately brought to market by all the main PC makers, including IBM, Compaq, HP and Canada's Eromex. For example, on April 30, IBM introduced three new series of notebooks based on the new Pentium II processors: the midrange ThinkPad 600, starting at \$4,399, the high-end ThinkPad 770, starting at \$8,499, and the ThinkPad 380XD, starting at \$3,999. 

*Jeff Evans is Associate Editor for Canadian Computer Wholesaler. He can be reached at [jeff@ccw.ca](mailto:jeff@ccw.ca).*

58 IBM Pavilion i290

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# Multi-Displays in Windows 98

By GENEVIEVE ROBERT



**W**indows 98 and Beta 2 of NT3, both due this summer, support up to nine monitors connected to a PC — slots and IRQs permitting. Your customers may be discussing of adding a second video card and monitor for use in Windows 98, but will they be able to get them to work?

Following the theme from my April column, I have spent some time performing further tests on multi-display systems in Windows 98. The results I have obtained are interesting enough to share here and certainly suggest that Microsoft's implementation of this capability is shortcomings at best and a total support nightmare at worst. That, if you are in the business of selling PCs and video cards, you should be aware of some of the details.

First, it should be said that your results may vary. We tested the same graphics cards on five different PCs and had completely different experiences apparently not related to driver or IRQ issues. The fact that a combination of PCI-based Permedia and ATI-in-Wonder cards worked on a 486DX-based Pentium Pro system with an Asus board but failed miserably on a 486DX-based Pentium PC using a Seyo motherboard has too many variables to categorically conclude that the Seyo board or BIOS is at fault.

Conversely, why an ATI All-in-Wonder worked splendidly as two of our test machines as a secondary adapter, yet presented this same Pentium Pro system with a WinFax 1530 adapter configured as the primary display from even booting, remains a mystery. One thing's for sure: The IRQ jumper on the ATI All-in-Wonder and ATI Pro card doesn't need to be enabled to allow these cards to receive video input signals using the ATI software, but it sure does if you want to have any success using the Microsoft ATI drivers in excess WinFax for Windows.

Also, today's 3D-accelerated video cards have such a wide array of capabilities that the potential for compatibility issues looms large. Take, for example, cards based on the Permedia2 or the ATI Rage Pro chips. Both are very popular, yet both yield quite unsatisfactory results in a game such as Microsoft's *Motorcycle Track Madness 2*. [It is a very good way to demo the benefits of a Voodoo2 card on card, though.]

Without a Voodoo, Voodoo2 or comparable add-in, the ATI Rage and Rage Pro cards render the *Motorcycle Track* headlight beams as ugly opaque cones. The Permedia2 gets the beams right, but fails up to the (sorta) transparent glow effect from headlights and taillights.

Assuming that you can get two or more display cards to work correctly in a multi-display Windows 98 or NT 4 environment (NT 4 supports multiple displays using certain

cards, as well), there is a most screen tour to be made of Windows 98 — to, horrified to move display # — to discover that when second display is active, the 3D graphics acceleration on your primary display is disabled! For example, say you've got a Permedia2-based Graphics Blaster Extreme card as your primary display adapter and install an ATI Rage II-based ATI in Wonder as your secondary display adapter. When both are enabled, the Graphics Blaster Extreme's OpenGL benchmark score (running the X3D benchmarks) drops from a blistering 125 frames per second (fps) to the same level as the ATI in Wonder's (legendary) 41 fps. The solution? Disable the secondary adapter in the Display properties dialog when you need 3D acceleration. Unfortunately, this means that games like *Fight Simulator 98*, which can take good advantage of multiple views, will not deliver optimum performance in a multi-display configuration.

All of this suggests that the 3D-accelerated entertainment market won't be especially satisfied with Microsoft's initial stamp at multi-display support. However, business-and-graphics-oriented users (especially users of palette-heavy apps like CorelDraw or PhotoShop) will be glad to have a solution that will give them a good excuse to ask the boss for a nifty new graphics card and force monitor on their desktops. Demonstrating graphics apps with the menus and palettes on one screen and their work on the other will

undoubtedly pay off for those who make the effort to figure out the problems before their customers do.

### Avoiding the Osborne Effect

On another topic, be prepared for questions about upgrades to Windows 98. Microsoft dealt with the issue with a special release of Windows 95 in early May. Apparently due to pressure from its channel partners, Microsoft has released a new version of Windows 95 that includes a free upgrade (or more precisely, the customer pays only a nominal shipping and handling charge) to Windows 98. This, presumably, is an effort to combat the "Osborne effect" — the slowdown in system sales that happens when a new product has been announced, but has not yet shipped. Adam Osborne, in the early '80s, saw his company go down the tubes when sales of Osborne's original "luggable" PC declined sharply after the second-generation model was pre-announced. Be prepared for customer questions about this offer by those buying PCs before the June 25 rollout of Windows 98.

### Apple News!

Finally, we're delighted to see Apple back on track, as acting CEO Steve Jobs and Apple vice-president of worldwide marketing Phil Schiller unveiled the company's new consumer Mac, dubbed the "iMac," on May 6, and demonstrated the system outperforming a Pentium II 400MHz PC. The iMac, housed in a futuristic pod-shaped translucent case and featuring a light-up mouse (weird!) is expected to ship within 90 days, priced starting at US\$1,299. So can we be the first to compare it to a New Beanzie?

As expected, Apple also announced a new series of PowerBook G3 portable Macs, code-named "Wall Street," priced starting at US\$82,350. We expect most customers will opt for one of the models with an Active-Matrix (TFT) screen, starting at US\$3,999, with luxury-handled Apple fans leaving after one of the high-end models with an 80MHz bus — the fastest yet in a Mac. These babies are decked out in style. The model selling for US\$3,099 features a 13.3-inch TFT color screen, while a model with a 232 MHz CPU delivers a 14.1-inch TFT screen for US\$5,599. Gulp. Fortunately, those units deliver the goods. MacWorld's Henry Bauma says the new 250MHz PowerBook G3 is over twice as fast on the SpeedMark test as the previous midrange model, the PowerBook 400c/240, and Pentium II-based portables are left, as they say, in the dust.

Apple incidentally has a very cool resource locator at [apple.com/](http://apple.com/)

enhanced level. Good thing, too. A couple of well-known Apple dealers in Canada lagged it during the last month.

### Goodbye Doppler, Advantage

As many readers are already aware, Doppler Computers, one of Western Canada's largest and best-known computer retail chains, has declared bankruptcy. *The Computer Paper* was at the location of the company's head office (along with VTV and a few other people who had been tipped off about the closure) as the employees, many of whom were unaware that the closure was coming, filed upside at 1:30 PM on May 1 and a sign placed on the door said "closed for inventory." By the following Monday, a notice that the company was in receivership was on its place.

Meanwhile, B.C.-based Advantage

Computers, another long-time Apple dealer, has in Toronto-based parrot company go belly-up. However, a bit of fancy footwork by original owner Bob Coker ensured that Advantage customers wouldn't be let down. Simply Computing, another western Canadian Mac dealership, has taken over all of the Advantage repairs and is letting former Advantage customers know that it has their equipment. Simply Computing says it intends to open up its second location in part of the old Advantage site on June 2. Meanwhile, Bob Coker has started a new venture with a former Advantage employee specializing in networking. Good luck to all. **WW**

*George Rennier is Editorial Director for *Canadian Computer Paper Inc.* and a former computer retailer. He can be reached at [grenier@key.ca](mailto:grenier@key.ca).*

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# A foothold for the handhelds?

3Com's Palm Pilot is mopping the floor with the competition in the handheld computing market. What is 3Com doing so right? What can anyone else do about it?

by Jeff Eaton

For the time being at least, the closest the handheld computing market has been won hands-down by a relatively new player — the Pilot line of personal organizers from 3Com. But do the competitors have any hopes of shoving down the Pilot's growing success?

3Com's Pilot family of digital organizers is currently taking about two-thirds of all sales in the handheld or "pocket-top" computer market. There are several other noteworthy players with respectable market share, but what is really interesting is that the handheld computing market is being ruled by perhaps the least sophisticated, cheapest, but most easily usable, of the computers.

#### **Simple is Beautiful**

The Pilot comes into existence in the shadow of some mighty and well-established competitors, including the Apple Macintosh (based on Apple's Newton technology), and other handhelds from Psion, Hewlett-Packard, Sharp and Casio. In particular, the Apple Newton technology was supposed to define a new generation of handheld



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computing by embodying the revolutionary concept of a "Personal Digital Assistant," or PDA. This was conceived as a "smart" device with software to allow it to interact with its user's habits, interests and handwriting to make information storage, retrieval and communication natural and pleasant.

Apparently dazzled with their own brilliance however, Apple's researchers seemed to lose sight of real-world consumer needs. In practice, the Newton MessagePad, especially in its early versions, was expensive, incomplete, frustrating to use, and not very productive. Despite attracting a modest user base of alien-devoted fans, the MessagePad fell far short of Apple's sales expectations. Former Apple CEO Michael Spindt, writing Toronto about a year after the launch of the MessagePad, poignantly informed the assembled Canadian computer press that the sluggish acceptance of the MessagePad was the fault of the media: "You do not understand the Newton technology," he declared.

In early 1998, Apple announced that it was discontinuing development of the Newton technology. Shortly after that, Apple also announced a new handheld computing initiative, which would be "more closely based on Apple's Macintosh operating system technology."

After the two failures of the Newton and the ill-fated Copland Mac OS, together with all of Apple's other troubles in recent years, it would be a miracle if Apple has any future in handheld computing.

## The Little Wooden Computer that Could

The Palm Pilot, meant of being developed as Apple's answer to "trust us we know what is

good for you," was created to do essential, everyday jobs that a great many people actually want and need to do. The Pilot was designed to help users record and remember important names, dates, names, phone numbers, and communicate easily and directly with larger PCs and eventually even via the Internet. The chief designer of the Pilot carved a Pilot-shaped piece of wood around which he sat in his pocket during the period when he was thinking about what the Pilot should be designed to do. He pretended to use his wooden model-up for daily information tasks, writing down his "uses" for the gadget as they occurred to him. Based on the notes taken during this "computer simulation," the first Pilot was designed to meet consumers' mandates needs, not to suit a theory of the future of computing. The resulting product emphasized a limited, but carefully selected feature set, absolutely user-proof synchronization of data between the Pilot

and a plausibly fast mass acceptance of a new computing platform. Over 140,000 were sold in Canada alone. As the Pilot flew, and the Apple MessagePad crashed and burned, all the other handheld computers were squeezed into a fairly constrained market space.

## The Bandwagon Effect

As the Pilot gained credibility, along with a huge user base, it began to attract a large number of

## The Players

Here is an inventory of some of the most significant current mass and luxury entry-level handheld computing.

### iClass — <http://www.apple.com/pilot>

Apple has sold only about 100,000 units in almost six years, suggesting it has the best design, development and purchase of hardware and software tools to produce this kind of computer. Interestingly, however, it has the fewest computing standards and compatibility. iClass (iClass is a trademark of Apple Computer Inc.) has adopted the "i" standard, but has chosen to implement its own proprietary protocols. iClass units can't run Microsoft Windows, and have to be connected to the Internet via proxy servers. iClass' limitations are, however, its main advantage: it is the easiest way to synchronize data between the iClass and a desktop computer. iClass' strengths are, however, its unique interface, its solid build quality, its excellent keyboard, and its low cost, more rugged construction and enhanced security options.

### BBM — <http://www.bbm.com>

After years of trying to profit from a pen-based computing device without much success, IBM decided to release a Palm Pilot iPAQ to try to offer a solution. Despite its name, the iPAQ is not a Palm Pilot and is a rather odd hybrid between the original iClass and the Newton. It has a full color LCD screen, a trackball, a numeric keypad, a full QWERTY keyboard, and a built-in speaker. While the iPAQ is a complete machine, it may not be as easy to synchronize between computers as the iClass, since IBM's high-priced software offers less support than those offered by the iClass or the Newton. There are over 1000 IBM compatible PC's for the Japanese market, a strong sales point for the iPAQ. However, IBM did not yet market the device in North America, but it is on the ultimate road to becoming the handheld computing market, if it chooses. As well, IBM is doing very interesting research into the iPAQ's LCD screen right now, trying to make this product competitive to the Palm Pilot.

### Handspring — <http://www.handspring.com>

Handspring is the second largest player in handheld computing, with about 11 per cent of the market. It sits between the iClass in the Windows CE market through three technological influences, backed up by its formidable marketing and channel clout. The top-of-the-line Handspring is one of those sleek Palm Pilots that doesn't have a trackball, but instead has touch sensitive screens on a standard PC computer price tag (\$1000-\$1200) or a handheld (\$150-\$200). Handspring's screen displays, audio recording, CompaqNet email and a PictureBook memory expansion give it leadership of the user's choices. iPAQs currently are, however, especially in both of these categories, higher priced, available in a larger and thicker housing, a longer battery life, and a better trackball. Handspring's iPAQ has also managed to offer a fully synthesizing keyboard that is a feature of most of its products.

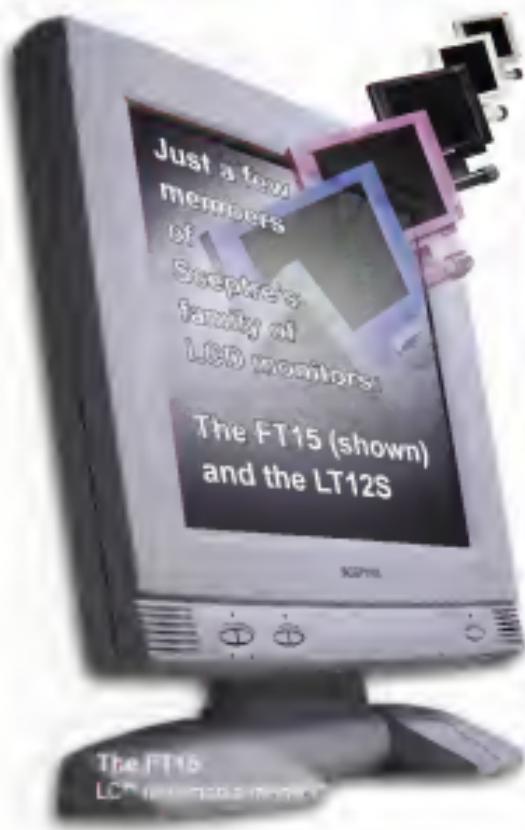
**Pronto! Electronic Publishers — <http://www.handspring.com/pronto>**  
Pronto! is the maker of the ultra-thin portable iPAQ Companion, a credit-card sized device that offers many of the core functions of a handheld computer in a tiny form factor. The iPAQ Companion is based on iPAQ's iPAQ 3800 handheld computer and is designed for its product marketing exclusively for power users.

### Compaq — <http://www.compaq.com>

Compaq was one of the many PC makers to fall into the Compaq/Compaq iPAQ alliance. When Compaq's iPAQ掌上电脑 for nearly two years, it facilitated market acceptance



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the temptation to let the Palm Pilot's feature set "keep" its larger, heavier, more CE-like forms, at least for now. Rather, Tidwell sees the competitors attempting to become more Palm Pilot-like. Microsoft floated a prototype "Palm PC" version of a Windows CE handheld several months ago that looked strikingly similar to a Palm Pilot.

3Com has a very clearly defined wish list of features that it wants to implement or strengthen in its new Palm models during 1998 and 1999, including wireless connectivity, enhanced e-mail and Internet access. More exotic features such as full color screens and

full multimedia Web browsing may have to wait a while, with the most tantalizing technologies such as voice recognition even further off in the vapor of future technologies.

### Follow the Money

A new market is opening up for handheld computing: the corporate market. It demands fully integrated software to meet particular business applications (such as barcode readers and database links for inventory control or auto insurance adjusting), trained sales staff, and reliable support. For the next couple of years, the best opportunities for resellers in the handheld market will be in selling and supporting complete handheld business computing solutions for small, medium and large businesses.

The basic handheld hardware will be a relatively small component in the solution selling, compared to the value added by the full package of products and services required for a professional solution. Software, system integration, communications and networking services and service and support will be the main profit opportunity in handheld computing as it becomes a part of the mainstream of enterprise computing in the year 2000 and beyond.

### How Long does a Golden Age Last?

Is there any point to buying CE, Psion or other non-3Com handhelds? The short answer is definitely "yes," whenever the features of the Palm Pilot are inferior to those of the competing devices. For instance, a full-powered handheld Windows PC from Fujitsu can be a fully networkable, MS-DOS/Windows/NT compatible computer, running real Windows applications with no compromises on file compatibility, speed or features. A Windows CE handheld or a Psion handheld has a home keyboard for handling moderate amounts of typing, as well as a degree of file compatibility with some Windows software. In the long run, though, 3Com's competitors will have to pack very hard to either match the Pilot on its ultra-light, ultra-portable home turf, or invent technologies that offer even greater convenience, portability, and value for money than the Pilot. This will be a tall order.

*Jeff Dunn is Associate Editor of Canadian Computer Wholesaler. He is based in Toronto and can be reached at jeff@ccwholesaler.ca*

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### What do YOU say?

A recent ZDNet reader poll<sup>1</sup> is here to give you a lot of feedback about the handheld computing revolution—so review my point of view of the download world:

"I feel the differences that consumers derived from technological advances in the last ten years were far greater than previous handhelds could offer. The same can't be said for the current generation of handhelds, which are becoming increasingly redundant. They are expensive and society needs a 'type of' upgrade. These individuals wanting the latest in technology will quickly justify the cost of a new full-powered PC instead of a handheld. Other consumers will eventually accept the fact of the new costs—time and effort to upgrade."

"I feel that handhelds are not for casual users they just attract very high...users are professionals."

"The competition in this industry will come from the sub-notebooks like the Toshiba i-Series, as the technology shrinks the size of the portable computer or having full blown computing systems."

"I think that people are going away from Microsoft, and no CE won't be accepted easily. As the Internet gets 2000, Palm Pilot users will leave system and 100% of my customers don't want to use a piece of equipment with no own OS. I think things will be much like some other year—Palm will shrink big, with more products coming out every 6 months or so. Microsoft will still be popular, and Palm will still be the best, but no one system will fit in a different niche."

"Mobile handhelds are priced well, it would be hard to census sufficient market share, with the price of desktops still remaining being so low today."

"I'd like to see them in stores for endorsement of these new products as free-to-use. Microsoft will put out the money advertising handhelds to even greater where and greater awareness."

"The next truly and the most successful handheld is CE in mini-tablets with full color displays and touch input functionality." —SS

# Plug In!



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# A Question of Service

by Paul Linn

..... Product margins are tiny; there's a cost for service — but are the customers getting the support they need?

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**W**hen a friend of mine bought a generic SVGA monitor from a computer store to replace one that had died, she could not get the monitor to display more than 16 colors. She needed help, but wasn't sure what kind or where to get it.

The problem seemed to be that her graphics card, Microsoft Windows and the new monitor were not communicating. She didn't get any useful help from Microsoft (after a long wait on the company's support line). The company that manufactured the monitor didn't even include a phone number with the manual — leaving poorly for post-sale technical support.

The reader wanted to "install a new graphics video card that might solve the problem." He worked the computer for four days and the price he quoted seemed exorbitant.

So my friend called on an independent home-based computer videographer. For a modest fee, he identified the graphics card (ATI), logged on to the Internet, to ATI's Web site, downloaded several updated drivers, installed them, and presto, the monitor displayed 16,000 colors.

The moral of the story: the free-lunch era of lifetime, toll-free hardware and software support has ended.

While one-year hardware warranties and extended warranties abound, consumers and small businesses frequently find themselves in the position where they have to take care of, or find somebody to take care of, their computer technical support needs.

Postscript factors include a virtual operating system monopoly, a highly competitive hardware industry (with profit margins shaved ever-thinner), and growing support-dependent consumer, small office/home office (SOHO) and small and medium enterprise (SME) markets. Combined, they've led to the scenario of less-free support and more fee-based support.

Microsoft Corp., for instance, offers free (but not 24-hour) telephone support for desktop applications like Word and Excel (a long distance call for users outside the Greater Toronto area). If users want around-the-clock toll-free support, they have to pay for it. Price depends on how many problems you want to cover: US\$945 will buy a user a 10-problem machine package that lasts one year.

#### Service Squabble

If the problem is with an OEM-installed version of Windows, with allegedly Windows-compatible software, or if it is hard to diagnose (operating system, software or hardware) then consumers can watch companies squabble over who is responsible for support.

The consumers' best bet is to get warranties, guarantees and technical support responsibilities sorted out (and in writing) before buying a computer system or before installing new software. From then, consumers should consider extended warranty plans or find a reseller with an specialized reputation for troubleshooting and repairing



problems — no matter who is to blame.

Having said that, it is important to point out that many manufacturers don't shirk their support responsibilities. Overall, the computer industry understands that it does not make good business sense to leave users dangling in the wind when it comes to support, witness the consumer backlash Intel Corp. faced a few years ago when it tried to update the bug in its Pentium chip.

So, even as computer makers cut deflect support services, they have also offered extended warranty plans, encouraged resellers to train in terms of service, support and training, and have upgraded online support services.

Microsoft, for instance, offers hundreds of frequently asked Microsoft Office questions and answers as well as product hints, tips and updates online at <http://www.microsoft.com/Office>.

#### Big Blue does Service

Hi! IBM Canada's Web site (<http://www.ibm.ca/canada.com>) and follow the small business link to find a wealth of resource material including frequently asked technical questions, product information and examples of how technology is being deployed in a small business environment. "We've been on a path the last couple of years to make our PCs easy to use. We're focused on printed and on-line documentation and online tools," says Roy Rivers, marketing manager consumer PCs, IBM Canada. "We've found through studies that consumers want those things to solve problems easily."

Both Aparts and Amtra owners can use diagnostic tools that come with their computers to troubleshoot problems, and they can find technical support information on line. More than 20 per cent of Aparts owners subscribe to a free Owner Privileges program. They receive preferred call handling and proactive e-mail hints and tips, as well as

If the problem is with an OEM-installed version of Windows, with allegedly Windows-compatible software, or if it is hard to diagnose (operating system, software or hardware), then consumers can watch companies squabble over who is responsible for support.

### Information on free software downloads

Besides on-line support, IBM continues to offer one-year, toll-free technical support to computer buyers. However, Rivers says it is something "you continue to receive." While IBM markets extended warranty plans, the company is also "fully supportive of our resellers who have their own plans," says Rivers.

Helping the consumer solve problems reduces channel costs, builds loyalty to IBM, and helps differentiates IBM from the competition, says Rivers. "And our business partners love it. It helps them sell product and saves them costs."

The IBM hardware support foundation applies to consumer sales as well, says Ross Sculwick, manager of channel marketing, IBM Canada. However, there are greater opportunities for business partners to secure "a good proportion" of their profits from software, services, training and support, he adds.

There are also high development, configuration support and training opportunities with networks, intranets, Web server projects and data back up and recovery. "That is the business partner's role, especially in the small and medium-sized enterprise market," he says.

### Dwelling Notebook Service Programs

As part of its strategy to enhance the experience of owning a notebook computer, Richardson Hill, Ont.-based Compaq Canada has unveiled two new services: a 24-hour on-site repair program and a notebook PC warranty repair pickup program.

The notebook PC warranty repair pickup program is being offered to owners of Amico 1500, 4300, T300 and 7700 Series notebook PC products. Customers simply call 1-800-OK-COMPAQ to request that their notebook PC be picked up for repair. A carrier is dispatched, the unit is picked up, repaired by a third-party contractor with Compaq Canada and returned to the customer within 72 hours.

The 24-hour on-site repair program is a one-year, chargeable warranty upgrade. The repair pickup service option is offered free-of-charge, and has been added to the base level warranty for products purchased after June 1, 1997.

While customers can opt to have notebooks serviced by any of Compaq's authorized service resellers across Canada, "there are some products we'd rather have come back to us," such as the THD series notebooks, says Christian Chabbal, notebook product manager, Compaq Canada Inc. This program helps the customers but it also helps resellers, Chabbal says. "Some resellers want to offer support and repairs, others don't. This gives everyone an option."

While a lack of competition in the software industry may have led to a decline in service, increased competition in the notebook industry has led to increased support.

Toshiba of Canada Ltd. is investing \$1 million to expand its Markham, Ont.-based Customer Service and Support Centre and is expanding its support team from 11 to 18 members. Bilingual staff provide support for dealers, resellers and end users. "We are putting the right people with the right knowledge and skills in place to better support our reseller channels and our end users," says Trevor Danas, general manager, technical services, Toshiba Canada Information Systems Group.

"Better support" includes toll-free help, e-mail PC Card support and full support for pre-installed operating systems such as Windows 95 and Windows NT (including set up and configuration). Toshiba's support staff are "very fluent" with Lotus and Microsoft applications and will work with customers as best they can to solve software glitches especially when it is a case of the software and hardware not communicating.

The support, described as "an open policy," is not tied directly to

warranties. If customers have post-warranty hardware issues, support staff will help diagnose the problem and will refer users to the closest authorized Toshiba service provider — be it a value-added reseller, dealer or service centre.

Dealers are free to offer extended warranties and on-site service, says Danas. In addition, Toshiba offers solutions and drivers and technical information that users can access on-line.

Of course, on-line support from Toshiba and other companies does not yet extend out from the manufacturer's Web site to the end user. Most manufacturers and distributors use the Web as either vendors and resellers technical support, to supply them with up-to-date patches and drivers and to keep them informed about new products and pricing.

So while much may not be as free as it once was, there seems to be more support information to chew down on.

*Paul Lima is a Toronto-based journalist who specializes in high technology reporting. He can be reached at [Algo@sfv1.vsnl.com](mailto:Algo@sfv1.vsnl.com).*

**'While a lack of competition in the software industry may have led to a decline in service, increased competition in the notebook industry has led to increased support.'**

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# Quebec

## A unique market, and opportunity

By Guy Martel

So you want to do business in Quebec?

It makes sense — the province of Quebec is the second largest market in Canada, right after Ontario. But there are definitely "DOOs" and "DON'Ts" for newcomers to the Quebec market.

The first and most obvious difference about selling in Quebec is the main language of business. Your products and services will need to be available in excellent French.

As well, Quebec's unique cultural background and large geography each present their own challenges. Quebec can be one of the toughest and most challenging markets to work in. The province has some of the strongest governmental and private consumer rights' organisations in North America. An illustration in point: many natural agencies are consumers from regions such as Lac St-Jean as a "benchmark" because they have the reputation of comprising one of the most oriented populations in the country when faced with new products. For more details on the market, see the bilingual Web site of Quebec advertising agencies at <http://www.appaq.ca/> for more information on language and culture issues, consumer patterns, media and advertising in the province.

### **The Hard Facts**

As in almost any field, size matters in the IT industry. Major tech companies find Quebec attractive for a number of reasons:

1. There is a well-educated and bilingual labor pool. Montreal boasts four universities, two English and two French.
2. Quebec is close to the East Coast of the United States (specifically New York and Boston).
3. The province has ties to France, a significant member of the European Union.

Investors in IT infrastructure should know that Quebec has become a world centre of telecommunications (Bilglobe, for example, has its headquarters in Montreal). In addition, Quebec has the largest amount of venture capital available in the country. According to Bernard Coopal, president of the risk capital firm T3C2 (<http://www.t3c2capital.com/>), this works out to approximately 45 per cent of the Canadian total.

These are among the factors that motivated both the Swedish company Ericsson to select Montreal as the site for its largest North American R&D base (350 engineers and technicians) and why Telecom Italia, the largest telecommunications company in Italy, situated its Canadian headquarters in Montreal.

Hardware manufacturers have their own reasons for favouring Quebec as a base for operations. Here are three examples. The proximity of the Americas East Coast was obviously an important factor when IBM decided to build a plant in Bromont (at the Eastern Townships, closer to Montreal) to assemble and verify more than 90 per cent of North American microships. Matrox, a leader in graphics cards, exports the bulk of its production and is located in Dorval, near Montreal. The French company GenPlan (<http://www.genplan.fr/>), the leading maker of insert cards in the world, was attracted not only by the potential U.S. market and the bilingual work force in Quebec, but also the funding and tax incentives offered by the Quebec government. Last December, GenPlan announced the opening of its new North American R&D centre in Montreal.

### **The Soft Spot**

At the software level, some incentives were decisive for the opening in Montreal of a large plant owned by Ubi Soft (<http://www.ubisoft.com/>), another French company. Founded by the five Guillotin brothers, Ubi Soft is the second largest European manufacturer of CD-ROMs, and one of the most important companies in the game industry for PCs.

Of course, Quebec spawned Solidage (now property of Microsoft) and Oncentre Logic (founded by former Solidage employees), known for their contributions to the making of special effects in such movies as *Eaten by Tassie Tropics* and *Jurassic Park*.

The multimedia and software industries are indeed very active in Quebec, according to the Centre de promotion du logiciel québécois (CPLQ), the "Centre for promotion of Quebec software" — <http://www.cplq.org/>. Of the 949 IT firms in Quebec, 372 are involved in software and multimedia. The current situation of this sector in Quebec is reflected in the following figures provided by the CPLQ:

**Targeted alliances**

Distribution	43%
Cross marketing	31%
Financing	14%
Enhanced technologies	12%

**Actual distribution channels**

Direct transactions	61%
Distributors	19%
Alliances	18%
VAs	8%
Agents	8%

**May I Serve You?**

IT services is a broad term that basically covers everything except hardware and software. Let's take two examples: technical support and IT services and analysis. The bilingual resources in Quebec make it easy to establish service centres for North America and Europe, Symantec and Hewlett-Packard have set up in Montreal, and Digital does its R&D (across the river from Ottawa).

The possibility of finding local human resources is a reality because of the large Hispanic community in the greater Montreal region. Cans in point: Macrina Separas (<http://www.machinseparas.qc.ca>), a software company specialised in grammar and spelling tools recently put out El Correcor (a grammar and spelling tool for Spanish speakers). The largest multicultural urban area in Canada aside from

Montreal multinationals in Canada are American, two Montreal companies are among the top 10 Canadian professional services companies: the CGE Group (ranking first) and the LGIS Group (ranking third).

**But What about Me?**

Perhaps you are thinking: "That's all well and good, but my business doesn't even come close to matching the size of companies like those. What can I do?"

Actually, there is quite a lot a small business can accomplish in Quebec. Be open to the Ontario market if you plan to do business or settle in a location around Hull. Take advantage of the access to international markets and potential business opportunities on the East Coast of the U.S.

You'll gain access to the economic heart of the province by opening an office in Montreal (which has the lowest cost of living of any North American city of comparable size).

However, do be aware that Quebec's taxes are, in general, among the highest in North America. As for the provincial capital Quebec City, while potential for business in the governmental sector does exist, it is by far the hardest place in which to establish a business among the three cities mentioned. (It's a smaller market, there have been budget cuts, and it's isolated from other large centers. That's not mentioning the bird systems.)

An example of a successful small business is Canclot Info, the largest computer bookstore in Canada. Established about 20 years ago, Canclot Info has locations in Montreal and Quebec City. Vice-president Robert Charbonneau emphasizes that the key goal of Canclot Info is "service."

Your value as a reseller is, in fact, defined by that "service something" you offer to all your customers. Be sure to define your typical customer, especially if you are planning to target hardware sales; margins are as narrow as in Quebec as anywhere else and competition is fierce indeed.

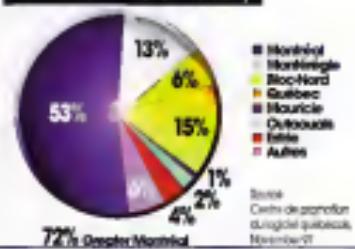
Take the time to do research on the features that make the province different in some ways from the rest of Canada (language and location, for example), and similar to others, (such as the IT infrastructure and standard of living). It can contribute to your success in this era of globalization.

Doing business in Quebec can be a profitable and worthwhile venture for companies of any size, but it does require some special effort. ■

Gaston Morin is a Montreal-based journalist and editor of *Québec Micro*. He can be reached at [reduc@quebecmicro.com](mailto:reduc@quebecmicro.com).

**94% IT companies in Quebec**

SOURCE:  
Centre de promotion  
du commerce,  
November 1997

**Geographic distribution of the software industry**

Toronto, Montreal has enjoyed the contributions from many different cultures. This feature fostered the advancement of Alin Technologies (<http://www.alinsoft.com>), another Montreal-based software company providing multilingual solutions. Batara, an internationalization library for the Windows platform that works with the Tango Web browser, can support more than 90 different languages, many are quite unique (such as Khmer and Malip), even when compared to behemoths like Microsoft's Explorer or Netscape's Communicator.

In the services/consulting sector, the giant DMR looms. It was originally a French-Canadian enterprise (the acronym DMR was created 25 years ago from the names of the three founders — Pierre Duriez, Serge Medler and Alain Roy). DMR is now part of the Americas ArandaL, which was recently acquired by Japan's Fujitsu. It is interesting to note that while the key players of the *Business 500* top software di-

# THE ENTRY-LEVEL

## Our Picks for 233MHz PCs!

by Sean Cornthwaite

**I**t's amazing to stop and think about the rate of improvements in computer technology. Just two-and-a-half years ago, those of us who had Pentium 100MHz-based PCs were like techno gods on the block. Nearly everybody else was running systems with Pentium 75MHz chips, or even 486s. Didn't we think we'd be at the top of the heap for a good long while?

Fast-forward to the present. You still might be using my Pentium 100 at home, but now it seems woefully under-powered by most today's professional and games software. Now, the industry is about ready to step production on the Pentium chips to issue of the Pentium II series. The 400MHz chip is now available and there is speculation that 1,000MHz chips may be available before the year 2000.

Having 32MB of RAM in a Windows 95 system used to be considered luxury. Now systems with 128MB are becoming almost commonplace. Hard drive sizes have shot up from one or two gigabytes to over 8GB. CD-ROM speeds have increased dramatically, even over the past year, to 36X. And 3D video cards with faster processors and more video memory have increased graphics ability substantially to love 3D graphics cards. After looking at the past, the newest high-end systems seem like pure power in a metal box.

### What about 'Entry-Level'?

The good news for the price-conscious buyer is that for entry



level in computer hardware, a quality component becomes "last year's model" and drops in price. Consequently, even systems that are termed as "entry-level" are powerful PCs, with a good collection of impressive components. Moreover, this market continues to grow, representing between 40 and 50 per cent of the U.S. retail PC market, according to recent studies.

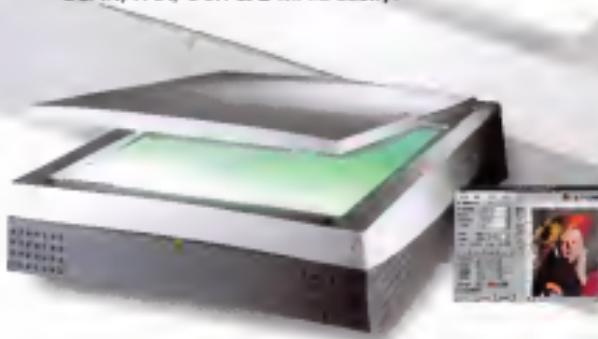
The transition to the Pentium II chip in new systems is all but complete with the phasing out of the Pentium chip. With the introduction of the 300MHz and 333MHz chips, the entry 233MHz has dropped in price. With the new 400MHz chips debuting, the older chips have dropped to prices enough that a 233MHz Pentium II system can retail for under \$2,000, with still enough room left over for top-of-the-line CD ROM drives, 56Kbps modems, and video cards suitable for high-intensity 3D graphics or modeling.

With a slightly smaller hard drive or slower CD-ROM than prices can even be knocked down to far as \$1,500. And even at the low end of the scale, the 233MHz chip is still a fast chip, ap-

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Contantly, these aren't at the peak of computing power, but that's not the point. A good chunk of your market is still made up of people who want to get into the computer world for the first time or purchase a second computer for the family without dropping a ton of cash on the newest and best.

## The Systems

For the purposes of this month's test, we asked vendors to provide us with a Pentium II 233MHz machine with 64MB of RAM. All of the other components were up to the standard. Most of the systems test to us had similar components, which were about what we expected; however, there were a couple of surprises worth noting.

The first was the video cards. Typically, entry-level systems have been pretty basic, with a functional but not extravagant card. This time out, most of the machines that we received had cards with at least 32MB included, and sometimes 64MB. This means that, even in entry-level systems, the machines can handle 1280 by 768 dpi screen resolution with 32-bit true-color without even blinking. Lower resolution provides even better performance. And games are no problem.

The other surprising thing was that some of the machines are starting to ship with Active Desktop pre-installed. How much that affects system performance is unclear. A quick test we did showed little difference between benchmarking scores on a machine running Active Desktop compared to the same machine with Active Desktop disabled (the test with Active Desktop came up a couple of points slower). For the officialness of the benchmarking software, we tested the systems with Active Desktop running, since they were shipped that way.

## The Tests

As always, the systems were tested using the BAPCo SystemMark 32 benchmarking software. Although most of the machines were capable of handling more depth due to the top-notch video cards in them, the display resolution for our entry-level tests was set to 800 by 600 dpi,

with 16-bit color depth. Preferences at higher resolutions are much greater than would have been possible with the IMB graphics card, certainly at the low end of the PC scale a year or two ago.

With the switch to Pentium II as the standard chip, a few things should be noted. Firsty, while the layouts of the motherboards are different from company to company, the connectors on the back of most machines are hardwired into a set configuration known as ATX. While older machines had serial and parallel ports floating hardware connected to the motherboard with cables, the ATX layout has the ports connected directly to the board in a standard configuration. The standard mouse and keyboard ports are now 16-bit style, although the user can certainly use one of the serial ports for a serial mouse.

Secondly, there's a point of confusion about MMX versus non-MMX chips. To clarify, all Pentium II chips are MMX chips. Although some BIOSes will not list "MMX" when the system is booting up, that is simply a function of that BIOS, and not an indication of a difference in the chip itself.

Thirdly, most of the Pentium II systems use 168-pin SDRAM memory exclusively, meaning more flexibility in memory configuration (all those times when you had to put SIMMs into the board in pairs is a thing of the past). In other words, 72-pin RAM generally cannot be transplanted from an older machine, unless the board in the Pentium II system is one of the exceptions that supports both.

To some, all of this information is like saying that a new car comes with an engine and a windshield. Still, it's important points to keep in mind when the casual customer comes into your store looking for information on upgrading. People moving up from a Pentium board may simply not have the option of swapping the CPU and getting back to work.

Even hardware hackers (who tend to upgrade their systems on a piece-by-piece basis) may find it easier and almost as inexpensive to go for the whole system deal.

A side note, for those interested, is that all boards continue to ship with the Universal Serial Bus port, despite the distinct lack of peripherals for these ports.

### Compaq Deskpro 2000

One of the major players in the industry, Compaq provided us with a slightly modified version of the standard Deskpro 2000 model. Typically, the package sells with 32MB RAM, and comes with a monitor, for just over \$1,000. To meet the requirements for this roundup, we had 32MB of RAM added to the configuration, and the monitor removed.

The Deskpro stood out from the pack in a few notable ways. While the other systems came with Windows 95 as its operating system, this one came with Windows NT Workstation 4. Hardware-wise, the system was the only one that ships without a monitor. On the other hand, the system comes with a Matrox Mystique display adapter hardwired right into the motherboard, a fact that goes a long way to explaining the machine's superior performance.

The hard drive, with only 3.2GB, and the CD-ROM, at only 24X speed are respectively less and slower than the same components on most of the other machines. Despite the Matrox adapter being hardwired right into the board, the adapter only comes with 3MB onboard RAM. Sound is courtesy of the ESS ES 1659 card.

Considering the choice of NT over Windows 95, the shortcomings in the multimedia department may not even be the issue. The Deskpro seems solely geared toward business rather than play, and in that regard, it comes through beautifully.

The suggested retail on the configuration we tested is \$1,992, and the PC comes backed with a three year limited warranty, with first year on-site



### Centronic AOpen

The low-end Centronic provided us with an AOpen-based system packed with goodies. Windows 95 came with Active Desktop pre-installed.

Composed primarily of Acer and AOpen components, the system comes with an Acer 32X CD-ROM, an AOpen K56Flex modem with ring wake-up, and an Acer FX-3D sound card. As far as components from other manufacturers, the machine boasts an impressive 6.4GB hard drive from Quantum, and not only does it come with the ATI Xpert3D Work XL video with 4MB onboard, the system also features a Diamond Monster 3D card.

Although the machine provided moderate performance in some of the benchmarking tests, the street price of \$1,699 makes it a bargain, considering the components included with the system. The AOpen comes with a one-year warranty.



### Daliva

The system Daliva provided for entry-level testing has a good mix of components for multimedia (and was, incidentally, the first system we received with Active Desktop pre-installed).

At 3.2GB, the Quantum hard drive is one of the few sub-4 GB drives at this roundup. However, the rest of the components are more than adequate, including a Matrox Millennium II with 4MB, an Adelco K36Flex modem, a 32X Panasonic CD-ROM drive, and a SoundBlaster AW64 card. As a bonus, there's a set of 90-watt multimedia speakers, and a three-button mouse, instead of the standard 2-button model!

The system has a street price of \$1,699, and is backed by a two-year warranty for parts and labor.



### Edge KTX

Edge Computer Ltd. built a KTX system with a few differences from the others in the test. Though the other machines were strictly IBM, the hard drive for this machine was a 4.5GB Quantum Viking SCSI product. Both the 56Kbps modem and the 16-bit sound card appear to be KTX's own components. The multimedia speakers that come with this machine are powerful, rated at 500 watts of peak modulated power output, and coming with their own subwoofer. For input, the system comes with the familiar Microsoft IntelliMouse, and the Microsoft Elite natural keyboard. The system comes with a Mitsumi 32X CD-ROM drive.

With the differences, the only big problem comes in the video card, which is the relatively low-performance Cirrus Logic 3465. As a result, while the desktop graphics were acceptably good, the overall performance of the machine suffered, turning in lower benchmark scores in almost every category.

That said, the KTX does pack a lot of good-quality hardware under the hood, and for those looking for something a bit different, aesthetically speaking, the custom keyboard and speakers' housing may be good selling points.

The system has a suggested street price of \$1,799, and has a two-year parts and labor warranty.



**Eico**

Eico continues its tradition of offering more for less. The machine this month is a full Pentium II 210MHz system with 64MB of RAM, a 3.2GB Fujitsu hard drive, a Lexon 24X CD-ROM drive, a SoundBlaster 16 card, a Harmony K56flex modem, and a Trident 9750AUP 3D and TV-out card.

Believe it or not, the Eico system has a street price of only \$1,200, and comes with a one-year parts and labor warranty. Making that unusual value deal is the performance of the machine, which scored in the mid-range of results for this group of machines. Certainly, while some of the components are not at the top of the line, the Eico machine provides outstanding performance for the price.

**Amico Azura**

Precincted with Active Desktop, the Azura also sports a 4.3GB Samsung hard drive, a GVC 56K X2 modem, a JMAX CD-ROM and a Sound Blaster card, both from Creative Labs, plus an ATI 3D Rage Pro video card with 4MB of RAM. The system comes with a Logitech three-button mouse as a bonus.

One complaint about this particular system: Most cases now feature a front-panel design which pulls the power switch down on the case, away from the components on the front that have buttons and controls. At worst, the power switch for the computer may be reasonably close to the floppy eject button, but with the diminishing use of floppies, this isn't as much of a concern. The Azura's power switch is located directly beside the CD-ROM's open/close button, and the "soft" feel of the switch means the user can shut the computer off in the blink of an eye, without even having to press the button deliberately.

For that reason, this machine requires a bit more care while reaching for the CD open/close button.

The Azura has a street price of \$1,738, and comes with a two-year parts and labor warranty.

**Jabs System JBS-6223/V02**

Armed with the sensible-looking machine of the bunch, Jabs offers up the JBS-6223/V02 system this month. The first thing you notice about this machine is the sliding door on the front. When it's closed, it makes the computer look like it's protected by futuristic armor. Press the release button on the top, and it slowly slides down the front, revealing the CD-ROM, floppy and power button. Sure, it's not an essential part of the machine, but it's cool — and never underestimate the sales potential of cool.

What's especially nice is that Jabs has backed up the look of the machine with solid components, including a 4.3GB Quantum Fireball hard drive, a 24X Creative CD-ROM and Sound Blaster card, the powerful Diamond Fire GL 1600 Pro video card with 8MB onboard, a U.S. Robotics 56Kbps Spiritstar modem (with a modest accessory kit), a Logitech three-button multimedia mouse, and 120-watt multimedia speakers.

The street price on the JBS-6223/V02 is \$1,995, and the machine has a two-year parts and labor warranty.

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**LCF Advanced Technology iNETpro ValueII-233**

LCF's entry into our test this month comes in the form of the iNETpro ValueII-233.

At a \$1,560 street price, this machine comes in near the lower end of the price range. Despite that, the iNET still contains a bunch of good components, allowing it to keep a respectable score in the benchmarking tests.

Inside the box is a 4.3GB Quantum hard drive, an ATI Xpert@Work XL video card with 8MB RAM, a Super 56Kbps modem, a Matsuta 24X CD-ROM and the Analog Device sound card with 3D sound.<sup>2</sup>

The system also comes with CorePerfet Sali II, and is backed by a three-year parts-and-labor warranty. Definitely a good machine for the budget-conscious.

**Mynix Mycomp Vantage-97**

Mynix Technology Inc. has built the Mycomp Vantage-97 system, which comes with Active Desktop preloaded and a good variety of components. This machine features the broad-speaking-new Matrox Productive AGP video card, which has 8MB onboard. The Productive undoubtedly plays a part in the good performance of the machine in the benchmarking tests.

The Vantage-97 also includes a number of other high-quality parts, including a 4.3GB Quantum hard drive, a U.S. Robotics 56Kbps modem, and the Creative Vibra 16 sound card. Filling out the system are a BTC 24 speed CD-ROM, and multimedia speakers.

The machine has a street price of \$1,199 and a three-year warranty.

**STD CompuPartner Ultra2330**

STD's entry in this month's test is an elegant-looking machine, but it certainly compensates for that with high-quality components, high performance, and a great price, to boot.

Underneath the plain case, the CompuPartner contains a good collection of some of the newest and best components. This includes well-known name brands, like a U.S. Robotics 56Kbps modem, and a Panasonic SDX CD-ROM drive. The system also has a Diamond AGP video card with 8MB RAM onboard, giving the system solid video performance. All of this is rounded out with a 4.3GB Quantum hard drive, an OPTI 3D sound card and multimedia speakers.

The CompuPartner has a warranty good for three years, parts and labor, and comes in at \$1,668.





**Ultriset**

Invisi Ultriset's 233MHz system uses a 4.3GB Quantum Fireball SE hard drive, a 32X Toshiba CD-ROM and the Marantz Millennium II video card, with 4MB RAM. Filling out the box are the Sound Pro Wave32 card, a 56Kbps NetLink modem, and 80-watt multimedia speakers. On the software side, the system comes with a CD package featuring either 350 titles with an encyclopedic, or a seven-tile cross-office suite.

The Ultriset system has a street price of \$1,260, and comes with a two-year warranty for parts, and five years for labor.



# Editors' Choice

**In Conclusion**

For the most common business and consumer PC applications, computing hardware is moving far ahead of the available software. For resellers, this means that a whole new level of customer can now afford to get into computing, which stimulates a PC market that was looking overmatured and sluggish 18 months ago.

On the downside, margins on these entry-level systems tend to be paper-thin, and the temptation to dump "parts-of-the-week" into a box and ship it out at a low, low price can be fatal. Unless quality levels are kept up, the results can be unhappy customers, and the rapid disappearance of even a meager profit on a sub-\$2,000 system sale.

**Performance****Compaq Desktop 2000**

In terms of speed, the Compaq Desktop 2000 takes the honors, hands down. With the video wired directly into the motherboard, the machine sliced around some of the other tests on the benchmarking test. However, with NT 4 installed instead of Windows 95, the system is geared more to the business desktop, and may not be the ideal power machine for everyone.

**Value****Elce**

Although none of the components are less than cutting edge, it's hard to argue with a Symantec score of 259 and a street price of only \$1,200. While not necessarily the choice for someone who wants a slick multimedia machine for all the latest games, its price makes it a great starter machine.

**Overall****STD CompuPartner Ultra2330**

Not only did the CompuPartner system place a solid second in this month's speed tests, it also carries a competitive price. The price is even better when you consider that the components included in the package are all top-notch, bleeding-system performance and reliability. This makes a great machine for almost anyone. **[+]**



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# Entry-Level Systems



	Compaq Presario	Compaq DesignJet 2000	Dell	Eizo	Gateway
<b>Processor</b>	Pentium II 233MHz MMX	Pentium II 233MHz MMX	Pentium II 233MHz MMX	Pentium II 233MHz MMX	Pentium II 233MHz MMX
<b>Clock</b>	512MB	512MB	512MB	512MB	512MB
<b>Motherboard</b>	Acer ASRock	Tandy Star ST 100	Sonic Pro 400	Sonic Pro 400	Sonic Pro 400
<b>RAM</b>	64MB SDRAM	64MB	64MB SDRAM	64MB SDRAM	64MB SDRAM
<b>Video card</b>	ATI Radeon 800 XL	MotoPro MyDigi	MotoPro Millennium II	Triton 8200 AGP 3D	ATI 3D Rage Pro
<b>Widescreen</b>	4MB	2MB	4MB	4MB	4MB
<b>Network card</b>	Acer PC 100	ESS 1394	3C 98004	56	56
<b>Hard drive</b>	Quantum 5400 UDMA	3.2GB UDMA	Quantum 3.2GB UDMA	Toshiba 3.2GB UDMA	Samsung 4.3GB UDMA
<b>CD-ROM</b>	Acer 12X	Panasonic 12X	Panasonic 12X	16X 30X	Creative Labz 20X
<b>Modem</b>	Aopen 56KMax	n/a	Adtech 56KMax	Harmony 56Kflex	Siemens 56Kflex
<b>System RAM</b>	Award	proprietary	Award	Award	Award
<b>Operating system</b>	Win 98 w/Active Desktop	Win NT	Win 98 Active Desktop	Win 98	Win 98 w/Active Desktop
<b>Other</b>	Diamond Blaster 3D 16MB		16MB Multimedia speakers		
<b>RAID benchmarks</b>					
<b>CD/DVD publishing</b>	318	295	318	295	295
<b>Desktop graphics</b>	403	342	410	360	360
<b>Display processing</b>	317	278	311	252	250
<b>Memory processing</b>	229	231	211	242	239
<b>Systemizer</b>	231	201	191	201	217
<b>Database</b>	229	207	211	266	229
<b>Spreadsheets</b>	316	297	330	259	298
<b>CD-RW</b>					
<b>CD-R</b>	1-800-903-1076	1-800-903-1407	1-800-429-2301	1-800-903-6703	1-800-903-6703
<b>Internet access</b>	www.commodo.ca	www.compuer.com	www.dream.net	www.ezaccess.com	www.mysite.ca
<b>Wireless</b>	\$1,498	\$1,302	\$1,698	\$1,298	\$1,798
<b>Memory</b>	25.6M	25.6M	16.1M	32.5M	
<b>(# of years listed, price)</b>					

## What the RAIDCo scores mean:

The numbers in the RAIDCo chart are derived by comparing the system being tested to the performance of a baseline system that would score 100 in each of the categories. A system that scores 100 in a particular category of the baseline testing test would be four times faster in that particular area than the baseline system. In each of the categories, the highest number represents the fastest performance. The lowest numbers don't necessarily represent "bad" performance, because in general, more numbers are still far

<b>LAB TEST</b>					
VC9 Technology (NETware Value II-233)	Jato JBS-6221/002	Edge KTX	Mylex Mycomp Vantage-57	STB Compaq/Perfec Ultra2330 ATX	Winnet

Pentium II 333 MHz MMX	Pentium II 233MHz MMX	Pentium II 233MHz	Pentium II 233MHz	Pentium II 333MHz MMX	Pentium II 233 MHz MMX
512KB	512KB	512KB	512KB	512KB	512KB
1GB RAM	1GB RAM	1GB RAM	1GB RAM	1GB RAM	1GB RAM
4MB SGRAM	4MB SGRAM	4MB SGRAM	4MB SGRAM	4MB SGRAM	4MB SGRAM
ATI OpenR/Wire GL	Shannon Pro GL 1000 Pro	Cirrus Logic 3400	Mtronix Proteonix AGP	Element AGP	Mtronix M64 Proteon II
AMR	IMB	IMB	IMB	IMB	IMB
Analog Device Sound card	SB 16	16 bit CTIA	Creative Labs Wave 16	OPTI 3D 16 bit	Sound Pro Wave 3D
Quantum 4300 UDMA	Quantum Fireball	Quantum Wave	Quantum 4300 UDMA	Quantum 4300 UDMA	Quantum Fireball SC 4300 UDMA
	SC 4300 UDMA	4300 SCSI			
Mitsumi 54X	Panasonic Creator 24X	Mitsumi 50X	SiTIC 50X	Panasonic 50X	Toshiba 50X
Sony 56Xps	SiS 56X Spectral 56 Mbps	SiS 56X CTIA	SiS 56Xps	SiS 56Xps	Panasonic 56Xps
Award	AMI	Award	AMI	Award	AMI
Wells	Win 95	Win 95	Win 95 w/Active Desktop	Win 95	Win 95
Card Perfect Suite II, M-450 multimedia speakers	120 W Multimedia speakers / 120W modems accessory kit	SiBW speakers and subwoofer / Maxtech Elite natural keyboard / RS Intelligent	multimedia speakers		120W multimedia speakers CD package with software

201	263	211	238	265	247
202	266	211	238	269	255
203	264	210	237	270	256
204	264	211	234	270	257
205	265	211	234	270	258
206	271	218	240	273	271
207	263	218	262	270	271

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81,999	81,995	81,738	81,738	81,999	81,999
SL, SP	SL, SP	SL, SP	SL, SP	SL, SP	SL, SP

better than the baseline system. It's also worth noting which units certain mechanisms will add to a machine with lower overall system performance (which is represented by the Systematic score) may score poorly in other database scores but do better in word-processing than some other systems. Just picking the highest overall number may not always be the way to go, if the machine is to be used for a specific task.



Up until now, processing speed gains Intel has had is fairly simple: simply, every six months or so, release a generationally faster version of its core CPU technology. At the same time, drop the price of previous versions. And every couple of years, release a new processor CPU.

As a result, new CPU models were aimed at the high-end, with prices to match. Older versions would appear in progressively less expensive computers, serving broader markets.

But last winter's explosion of low-cost computers caught Intel by surprise, along with much of the industry. To a huge extent, these models, accounting for in excess of 40 per cent of the consumer market, were powered by new generation CPUs, designed from scratch for low cost and reliability by Intel's competitor such as AMD, with the K6 processor. Despite a TV ad campaign prodding the "Intel Inside" logo customers were happy to use something else instead if the price was right.

The result is a strategy switch by Intel focused on a single CPU line aiming to cover the entire breadth of the market. Intel is now offering different processors for different market niches — a processor line for mainstream business models, one for high-end servers, and another for low-cost, consumer markets.

On April 15, Intel unveiled the first Celeron processor — its new model aimed at the low-end mass market. It's a 206MHz model, based on Intel's Pentium II, and like that processor, is designed in a cartridge to fit into Intel's proprietary Slot I.

While Celeron is presumably named after Celarri, an obscure synonym for speed, the design keeps the Slot I design, but drops the cache RAM. The result is a processor that compares badly to low-end models from Intel's competitors, and even to the slower Pentium MMX models from Intel; it is meant to replace PC Microphones, for example, benchmarked a Celeron 206MHz system from Compaq and found that it was slower than a typical MMX 233MHz (with 512KB of L2 cache), and in fact, barely outperformed an

# Say "No" to Celeron

By Alan Zisman

MMX 166. And while Intel had earlier claimed that Celeron models would benefit from their Pentium II heritage with improved multimedia performance, the system tested offered poor 3D performance. Forget about selling these systems to the game-playing segment of the home market?

Moreover, while they share Slot I designs, the motherboards on many Celeron systems will not be able to handle standard Pentium II cartridges, making them non-upgradeable. By using Slot I, however, these systems are forced to use motherboard chipssets. In this case the new 440BX from Intel!

In order to keep the price low, the 440BX is limited in other ways. No multi-processor support, and only two slots for DIMM memory sticks — supporting a maximum of 256MB of RAM. Support for a maximum of three PCI slots (thus system expandability by comparison, the common 440GX design for Pentium II's supports four) via the RAM and five PCI slots).

While Celeron, with wholesale pricing at US\$135, is aimed squarely at the low-end consumer market, those will be better served with models based on AMD's K6 (with new models expected to reach 300MHz and 350MHz this year). Cyrix's MediaGX (dressing up to 266MHz and beyond, and offering integrated graphics), or the new Celeron processor from Integrated Device Technologies. All three are based on the older Socket 7 technology used by Intel in its Pentium and MMX models.

Currently, Intel's competition account for about 15 per cent of the market, which is expected to rise to at least 20 per cent this year as the Intel work out problems that limited production in 1997.

Many of the big-name computer manufacturers have announced Celeron-based systems, but some, such as Compaq, are also offering MediaGX or K6-based systems. IBM is operating Celeron actively, using the K6 in its low-end offerings. IBM's manufacturing K6s for AMD's Intel line, instead, are looking forward to the next generation of Celeron. It's code-named Mendocino, due in late 1998, and is expected to put a much bigger bite into the cartridge, in a way to offer reasonably respectable performance.

The best response for now, is to say "No" to Celeron. Nevertheless, at the same product launch Intel debuted Pentium II models running at 333MHz and 400MHz were unveiled, at prices of US\$649 and \$800 respectively. A 450MHz model is expected in July. The CPU speeds represent an increase over the previous 333MHz models, but more significant is the motherboard chipset that they'll run on. The 440BX chipset runs at 100MHz, a significant increase over the 66MHz used in existing models.

Of course, Intel competitors are expected to respond with their own 100MHz chipset designs later this year, and the betting says that Pentium-like models will see even more performance improvement from the faster bus than Intel's Pentium II designs.

These 100MHz bus designs not only allow the CPU to run faster, but they speed up operations across the system. This won't be the end, of course. At last March's WinHEC conference, keynote speaker Michael Stiles predicted 200MHz systems based by 1999 running processors at speeds of up to 740MHz. According to Stiles, even the new, faster 100MHz bus will have a hard time keeping up with upcoming RAM designs, such as Rambus RDRAM.

Alan Zisman is a computer journalist and teacher living in Vancouver. He can be reached at [azisman@sympatico.ca](mailto:azisman@sympatico.ca).

# Chipwars hit entry-level segment

by David Tomska



Apparently undaunted by Intel's recent invasion in the entry-level PC market, Cyrix Corp., boasting that its MII 300 macroprocessor is about 25 percent faster than Intel's 200MHz Celeron. The company boasts its claim on a WinScore test result of 76 for the MII, compared to 31 for a 200MHz Celeron. And on the Ziff-Davis Windows test, Cyrix says the MII scores nearly as high as a 300MHz Pentium II.

Backing up a few months to the spring of this year, Intel Corp., with its PC roadmap, divided the PC kingdom in three. According to Intel's grand plan, the 100MHz bus and Slot 2 Pentium III configurations were to serve the high end, while the Celeron would bring Pentium II technology to the entry-level market.

Intel has traditionally paid little attention to the bottom end of the market. However, it was caught in an awkward position of placing itself in the Pentium box at a time when the market was suddenly embracing the cheap PC. Its response was to create the Celeron — part of the Pentium II family but without the on-board cache.

Cyrix and Advanced Micro Devices Inc. (AMD) have been singling a criticism to using against the Pentium II with its proprietary Slot 1 design. The MII and AMD-K6 offer comparable performance, the chipmakers argue, while offering further savings by being compatible with existing Slot 1 motherboard designs. AMD recently announced a one-year factory agreement with IBM to add capacity for AMD-K6 production. Production there is expected to begin in the third quarter of 1998.

Among the board-name manufacturers that have been using AMD and Cyrix CPUs are Compaq and IBM. IBM's Agere E series will use the AMD-K6 processor, including a 300MHz version.

**"The big question is where the next "magic" price point resides for Cyrix and AMD. Will it be \$50 less than genuine Intel, or \$250 less?"**



Also with its eye on the entry-level PC segment, National Semiconductor Corp. announced in April that it will have a single-chip PC system by mid-1999. National says the single chip will be built around a Cyrix CPU core, and will replace the dozen or so chips that are currently used to build PCs. (National and Cyrix merged in November, 1997.) The chip will be manufactured in a new 0.25-micron wafer fabrication plant in Portland, Maine. National says the plant has the capacity to scale the process down to 0.18 microns.

National says it is taking a distributed processing approach to chip integration, where different parts of the chip will be optimized to perform specific functions. Hence the chip would have multimedia processors and communications processors, for example. The company says that all the major PC functions except for memory and some of the power-supply components will be integrated on the chip.

Since Chatsworth, Calif.-based Integrated Device Technology Inc. (IDT) announced in the spring that it had signed a foundry agreement with IBM to use its 0.25-micron Blue Logic technology to manufacture IDT's WinChip OS microprocessors, the WinChip OS was announced in October by IDT subsidiary Cypress Technology Inc. The MDM-optimized chip, which was expected to be shipping by mid-1998, is aimed at the sub-US\$1,000 midrange desktop PC market.

Evergreen Technologies has announced it will be using the WinChip OS microprocessor in an MacPro line of Pentium upgrade processors. These developments mean that a lot of action is taking place for entry-level Intel CPU replacement markets.

In terms of new PC production, Intel, Cyrix and AMD now have (largely) comparable CPU technologies for the sub-\$1,000 PC market. This is one where Intel's competition was going to make hay, but already, some vendors are advertising Celeron-powered PCs below the magic \$1,000 mark, and that's in Canadian dollars. Intel, with its "Intel Inside" campaign, has done an excellent job of capturing consumer confidence.

The pressure will be on PC manufacturers to bring Cyrix or AMD-powered PCs to the market at even lower prices. The big question is where the next "magic" price point resides. Will it be \$50 less than genuine Intel, or \$250 less?

The alternative scenario is the rise of the simplified PC to meet the needs of a less technologically sophisticated buyer. For example Acer has announced its XC computing appliance concept, where PC-like computing devices (albeit with limitations in functionality or expandability) will become available starting in US\$149. There will be geared to people less concerned with the awards and more with what it will allow them to do. Acer predicts that the XC will prove to be more popular than the PC within a decade. **IP**

**David Tomska** is a Vancouver-based journalist and Editor of *The Computer Paper*. He can be reached at [davet@tcp.ca](mailto:davet@tcp.ca).

# The Path of ProData

*This Western Canadian distributor says it's firm on the "value" model of doing business.*

By Michael McLean

**G**raeme Gauthier has invested a long way since his early days as IT reseller when he sold software from his station wagon. Now he's behind the wheel of a Western Canadian PC manufacturing and distribution company that houses four locations, with sales expected to hit \$30 million this year.

Gauthier, president of Pro-Data Inc., headquartered in Winnipeg, recall loading up his station wagon with products and knocking on doors when he started the company in 1987. A box of diskettes sold for \$10 and was about a high-end item he said. "But as prices crepted on all those type of products we realized we had to get into bigger volume stores and that's where we started distributing hardware products," he said. "In a certain sense, life was simpler in those days. It was easier to sell your product. If you had the product, customers just knowing it's door was enough to sell it."

These days, it's a rough sell. Successful players must deliver quality products and provide good customer service and support, Gauthier said. "Right from the start we've been a value-oriented company," he said. "A lot of distributors are more like brokers. They just buy products and move them on the back door then move on. We've always been focused on partnering with key suppliers such as Fujitsu, Sharp and others. We don't carry 10 different CD-ROMS or 10 different motherboards. We decide which products [are the best] and we stick with them. Basically, we've had the same suppliers for 10 years."

Steve Lubell, national sales manager for Fujitsu Canada Inc., said Pro-Data customers get good value. "They are a quality organization," Lubell said. "They have top-grade customer service and support and

that's what we like about them. People don't buy from them because they're the lowest price in town. People buy from them because they get the quality, service and support."

Budding alliances with companies like Fujitsu Computer Inc. is important to Pro-Data's success, Gauthier said. "Alliances are very key. Many distributors just shop around. They search and buy CD-ROMs that are very cheap. They'll blow those out and move onto another product line. These are brothers. They're here today and gone tomorrow."

Michael Poddle, service manager at One Factor Computer Services head office in Calgary, has been a Pro-Data customer for approximately four years. Poddle supports the company's value model. "It's not good for a company like us to buy the cheapest product we can find. There wouldn't be any consistency. We try to sell a good product that's well supported and one you can get replacement parts for. With a good product, you're going to have a minimum amount of problems and people will be happy."

Pro-Data's line-of-products include Fujitsu hard drives and printers, ECS mother boards, Sharp notebooks, Hyundai monitors, Alsted Tokyos networking products, GMC monitors and keyboards, STB, Itron and MDC. Pro-Data is an authorized service agent for Packard Bell, Sharp, Hyundai and Fujitsu.

Pro-Data brought to market its first Performance Design desktop system in 1990 and has since built more than 20,000 personal computers. These systems are built in Canada and configured to suit a customer's needs. Some of the features include an ECS motherboard with Intel 486 TX/HDX/VK chipsets, a Fujitsu floppy drive

and a keyboard.

Approximately 30 per cent of Pro-Data's sales are to western Canadian university bookstores that sell computers on campus. Pro-Data has locations in Winnipeg, Calgary, Edmonton and Vancouver. The company has 38 employees and Gauthier plans to hire four more in the fall who have the right fit.

"We prefer people who are just starting out in the industry who show us the skills we want in terms of personality and integrity and from there we'll show them the sales training."

Gauthier, who is a shareholder in the company, along with Trevor Gauthier and Christian Journeau, said he has no plans to expand outwards Canada. "We don't chase customers out west because we can't support them properly," he said. "I can sell these products but when they need more support, we don't have a warehouse or service car out [for them] so I don't feel comfortable with that."

Gauthier expects his company to grow with the ever-changing market. "The future of the market is pretty wild," he said. "It will continue to grow as PC prices continue to fall. Every time it falls 10 to 30 per cent, a new market opens up. It has a plus point where there's now another level of people who can afford PCs. Businesses are always looking to become more efficient and competitive; businesses will only continue to expand."

"People know what to expect from us. We're not a distributor that opens up and has no real focus and then it goes a year later. We're always going to be here," he said.

Michael McLean is a Toronto-based journalist.



## Canadian trade mission reaps \$800 million in deals

Canada's minister of international trade Sergio Marchi, was in Hong Kong recently to oversee the signing of \$800 million in agreements between Hong Kong and Chinese IT companies. He also visited China.

Other investments were made in sectors such as aerospace, technology, telecommunications, electric power, manufacturing, medical supplies and education.

One of the deals was between Newbridge Networks and New World Telephone Hong Kong for switching and routing equipment for New World Telecom's new ATM network in Kowloon Bay.

The network will be designed to connect more than 1,000 people over six floors, and will allow voice, data and video images to be transmitted at speeds of up to 155Mbps. Newbridge claims this will be the first switched routing system in Hong Kong to be built using the Multiprotocol ATM standard.

At the ninth Annual Governor's Dinner of the Canadian Chamber of Commerce, Marchi said that as dramatic as the increase in trade and investment had been, relations between Canada, China and Hong Kong are just getting started.

"As we approach the next century, Canada is looking more and more to the Pacific Rim for our own economic growth," he said. "We recognize that the greatest opportunities of tomorrow are here."

Another contract was signed between Remotica Technologies Inc. of Vancouver with Hong Kong's IMD Ltd. for the distribution of Remotica Internet personnel recruitment technology products in Asia, Australia and New Zealand.

The third was the signing of a memorandum of understanding between Teliglobe Canada and the Hong Kong Joint Institution Job Information Centre.

The agreement is for the establishment of an apprenticeship program where recent graduates from seven local universities and colleges will have the opportunity to receive on-the-job training at Teliglobe headquarters in the U.S.

## Hitachi Ltd. announces 0.18-micron ASIC chip family

Hitachi Ltd. has announced the development of a new family of ASIC (application specific integrated circuit) chips produced in half the resolution of current chips. The H070C series of chips, to be available in June, is built on a 0.18-micron rule.

Hitachi's current H070C ASIC series is built on a 0.25-micron rule, meaning the smallest gap between circuits and components can be 0.25 micrometers. The new chips, built to a 0.18-micron rule, halve that gap, meaning chips can be made much smaller, or more can be fitted into the same size package.

In addition to the increased density,

Hitachi says the new series offers a maximum clock speed of 400MHz, low supply voltage and one-fifth the power consumption of the previous 0.25-micron rule-based IC series.

Using this new technology, Hitachi says it is now planning the production of an ASIC product range that includes an SuperH microprocessor core, DRAM flash memory and other circuits on the same chip.

Customers will be offered a range of microprocessor cores for use with the ASICs, including the SH-3 32-bit RISC processor and the 16 bit H8S microcomputer.

## Kao to end floppy disk production

Kao Corp says it will end production of floppy disks.

The company, formerly the world's largest maker of floppy disks, ended production in the U.S. last year.

The move to end floppy production, currently at factories in Japan and France, comes after Kao has seen large losses in the market. Stiff competition in the floppy market has pushed the price of a disk down from around 1,000 yen, when Kao entered the market in 1988, to around 300 yen in the mid-'90s to around 50 yen more recently. (ID)



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# Black in the

by Paul Winstenberg

*Competition is red-hot as accounting software vendors vie for the small-business market.*

On the software front, accounting these days is anything but boring and stale.

Sales for accounting software packages in the Canadian retail/marketing channels rose by 24 per cent between the first two months of this year, compared to the same period in 1987, says Durel Ryce, business manager for A.C. Nielsen & Co.'s computer industry services. He suggests that with the preponderance of small businesses, which still use paper ledgers, this huge market is still not fully tapped.

But even among existing users of entry-level accounting software, the matter of year 2000 compliance is forcing many clients to take a closer look at their financial management requirements, says Richard Morechene, a fellow chartered accountant (CPA) and president of Toronto-based Morechene & Associates Inc. "Two years ago, nobody was interested in the year 2000 problem. Now, it seems to have permeated 40 per cent of my practice."

Also continuing to make waves is the ongoing competition between the two most popular accounting software brands, which are currently neck-and-neck in terms of current sales in the Canadian retail/marketing channels, report Ryce. In the first two months of 1988, Intuit Inc. (QuickBooks and Quicken) led the pack with 44 per cent versus 41 per cent for Computer Associates International Inc. (Simply Accounting). Ryce adds that these numbers illustrate nicely with Computer Associates' sometimes placed slightly ahead of Intuit.

Meanwhile, BestWare continues to be locked in third place at 11 per cent. Tom Nash, director for the Toronto-based BestWare Canada disputes A.C. Nielsen's analysis, stating that the research misses niche markets where BestWare is strong, such as wholesale distribution.

Also, Morechene suggests that Simply Accounting has a larger presence within its install base of traditional loyal users. He attributes this to the product's strong Canadian roots—it was originally developed by a Vancouver company that was subsequently bought out by Computer Associates. But mediocre sales of less than one percent in the larger U.S. market led to its neglect, by the New York-based software giant. "Computer Associates wasn't doing much with Simply Accounting. The product was stuck in a time warp. For a couple of years, [CA] focused on minor maintenance upgrades," he states.

Switching accounting systems is not an easy decision for an end-user and mastering a new product requires 50 to 100 hours of initial use, says Bolen, Ont.-based Tyre Bonfield, chartered accountant, at Welwynbury Smith Bonfield. He therefore finds that Intuit's QuickBooks has been making major inroads into start-up businesses. Many of his clients are former middle managers of downsized organizations that are starting new enterprises from scratch. He attributes QuickBooks' popularity to its ease of use, compared to Simply Accounting, which he describes as "vibratoless."

Lee Horgan, senior product manager for Edmonton-based Intuit Canada Ltd., adds that his company has "very difficult" accounting. He also notes that at least 40 per cent of the purchasers of Intuit's products initially rely on his company's personal management software product, Quicken, for business accounting. It has attempted to rectify this with the introduction of an intermediary product, Quicken '88 Home and Business.

Accounting software was originally designed for accountants and not surprisingly they contain a lot of jargon and approaches best appreciated by this profession. The challenge has been "to balance accounting integrity and ease of use," says John Schouten, the Toronto-based vice-president of sales for Accpac International, the division of Computer Associates in charge of Simply Accounting. He concedes that his company "has not moved rapidly" in recent years on additional features for its entry-level product. Yet Schouten asserts that the recently released Version 4.0 of Simply

Accounting has one clear concern, including an electronic invoicing feature and a bilingual interface — plain English or in the language used by accountants.

One of the potential knock against Simply Accounting is that a user cannot delete an entry, as opposed to QuickBooks, where one can input the correction and the error disappears without a trace (MYOB is somewhere in between in terms of this feature). However, Schausen at Acpac International argues that good accounting practices must include a complete audit trail, which is why the product records both the original transaction and the adjustment to avoid confusion and provide a full financial picture for the accountant.

While small businesses invariably make mistakes, it is another thing "to monkey around with the books, leading to fraudulence," adds Miroshov.

Unlike other applications like word processing where one brand is the same as the other, each accounting software package differs somewhat in terms of features. This can speak a lot of argument among accountants over which product is preferable. Reichbauer, for instance, likes the large database in QuickBooks, because it allows for multi-year financial reporting. However, Miroshov finds that they also slows up the processing of transactions in QuickBooks. "I understand that is addressing this," he says.

What has helped Simply Accounting's sales up to now, recalls Reichbauer, is that it is the one accounting product that company store clerks were most familiar with, even with the presence of other titles on their shelves. But the marketing of QuickBooks on television has changed perceptions at the front counter. "Even the kids in the stores are picking up the machine," he adds.

In order to strengthen their foothold in the channel, most of the accounting software vendors will hire computer retail staff on the latest products. But rapid turnover in these stores often defines the purpose of this offering, states Nadia de Bruin-Wise, who describes this as "the toughest challenge" for her company's business. BlueWave cannot afford to pay for well-positioned shelf space in the stores on a per-store basis, he said, while Intel, which is able to share its expense among a larger base of products.

Mash reports that his industry "is going beyond ease of use." His user vendors including BlueWave listing features in their offerings to address the requirements of neglected niche markets. Small import-export businesses, for instance, could use a multi-currency option, but this is only available in more expensive and robust, mid-range accounting software products, priced in the thousands of dollars and geared for companies with a few hundred employees.

Mash sees top-of-the-line versions of all three major entry-level accounting products increasingly containing such features formerly only seen on more sophisticated software. One example of this is the \$700 multi-user MYOB Premier. However, Mash adds that such LAN products are really aimed at small businesses which have outgrown their present accounting systems. Network versions are not exclusive to the average modestly sized enterprise, which typically has only one person working full-time on the books.

But there is trend towards greater integration of the accounting system with the rest of the office, says Miroshov. Version six of Simply Accounting, for instance, contains links with Microsoft Office, which allows employees, who are not of accountants or bookkeepers to take information from the accounting system and create reports in other applications such as Excel and Word.

Leaning on the horizon for entry-level accounting products looks with new enhancements to the question of how long can they stay in the sub-\$200 range. Mash foresees in the near future "a sorting of the houses" by users, for instance, with QuickBooks, which he predicts could be as high as \$300 down the road.

On the other hand, in balancing of interests exists in the buying of accounting software, what Mash calls "duality," between the small business owner focused on price and the accountant who worries about the best features and product quality. In the end, the owner is invariably influenced by the recommendation of his financial advisor. Also, it is much easier for the partner of both the end-user and the accountant since compatible accounting systems. *gr*

#### Contacts:

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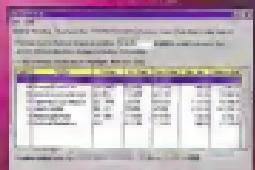
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Computer Accountants — <http://www.ca.com>

Intuit — <http://www.intuit.com>

Simply Accounting — <http://www.simplyaccounting.com>

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MYOB Deal — Intuit deal

# Microsoft Dial-Up Networking: Not Just for the Internet

By George Josephson

Imagine this scenario: A field sales rep has to give a presentation to a group of prospective clients. It's about 9 p.m. the night before the big day. The rep is in his hotel room and he decides to run over the presentation one more time. He fumbles up his laptop, goes to open that Microsoft Access file, and finds it won't open.

Now what? It's too late to try and re-create the presentation. The office is closed so no one can e-mail a copy, and the presentation starts early the next morning. Our friend is pretty much out of luck, isn't he?

Maybe not. Suppose our rep could dial into the company servers and access his files as if he were at the office, and simply transfer a new copy of his presentation to his laptop? No problem, if he's using Microsoft's Dial-Up Networking (DUN). DUN is widely used for TCP/IP (Internet) access, and while many corporate networks are also adopting TCP/IP as the protocol of choice, many still use IPX or NetBEUI to access Novell and Windows NT servers. Many don't realize that Microsoft DUN is capable of handling these protocols over a standard dial-up connection.

## Device Connection

The software can not only be used for sending and receiving files to and from servers, but can also be used to access remote devices such as networked printers. Field reps can take orders log in to the company servers and fax to the office. Laser printer, and enter orders directly into the corporate database programs — just as if they were sitting at their desks in the office. They can also get access to the latest sales figures, spreadsheet inventory, and other information — all without having to learn any new software (besides what they already use at the

office). This is efficient, as it doesn't require additional software, and provides a single centralized repository for data files.

For the user, logging in over the remote connection is the same as logging in from a networked workstation, with the obvious exception of using a regular mouse or an ISP. This can easily be done with a dial-up on the desktop, or the same manner as one would set up a TCP/IP dial-up connection on the client end. In the set up for DUN connections, options are presented for enabling the desired communication protocols. In fact, multiple protocols can be supported by a single DUN connection, offering access to a variety of services in the server end.

On the server side, a Remote Access Server (RAS) is used to take incoming connections. This can either be via a single phone line or a modem pool. The RAS connects the incoming calls to the local network. Once the proper connection is established, the user can have the same level of server and device access as they would normally have if connected to a machine on the local network.

## Speed

As would be expected in any dial-up situation, speed is affected by many factors, such as modem speed and line conditions. I've personally done file transfers to and from a Novell server over an IPX dial-up and a 28.8 modem, with acceptable results for small to medium-sized files. Of course, it would be better if 56Kbps happened to be supported by the RAS modem pool, especially in a situation where most file transfers are done from the server to the remote user.

It's even possible to run applications from a server on a remote machine, but under

that "constraint," as the speed of doing so would be far from acceptable, especially with a large application such as a word processor or spreadsheet. In an emergency situation, however, the ability to do this can be an important consideration for the use of DUN.

DUN 1.2 is supplied with Windows 95 Home 2 and the latest version of Windows NT 4. Users of earlier versions of Windows 95 with the original dial-up networking package should seriously consider upgrading to the latest version. DUN 1.2 has added features and is more reliable than the original. Upgrades can be obtained from Microsoft's Web site in the Windows 95 section, along with several other components of OSR2. The forthcoming release of Windows 98 and NT 5 will no doubt bring still more enhancements to the package. Consider Dial Up Networking can be an effective and perhaps essential, tool for keeping road warriors in contact and up-to-date with the home office.

Further information on the use of DUN is available at bay /duninfo/mcaughr.htm

George Josephson is a computer technician and Internet junkie. His can be reached via e-mail at george@jfc.net

"Dial-Up Networking can be an effective, and perhaps essential, tool for keeping road warriors in contact and up-to-date with the home office."

**W**hether you are currently a seller or thinking of starting your own reselling business — do you know what it takes to accomplish your dreams?

Whether people are born with some of the necessary traits or learn them is a topic for a good debate, but what we do know from numerous studies is that successful entrepreneurs tend to share several important personality characteristics.

Entrepreneurs are often strong individualists, optimistic and resourceful, and they usually have a high degree of problem-solving ability. They also tend to be self-confident, self-reliant, versatile and accumulative. Additional traits include being objective, realistic, open to change, and looking for and creating opportunities.

Here are some other common traits of entrepreneurs:

• **Strong goal-orientation.**

This includes the ability to set clear goals that are challenging but attainable and the ability to continually re-evaluate and adjust goals to make sure they are consistent with one's interests, talents, and values as well as personal or business needs. Rather than being content with reaching goals, successful entrepreneurs continue setting new goals to challenge themselves.

• **Persistence.**

This involves a headlong pursuit of one's aims, constant perseverance, driving for a goal despite obstacles, and strong determination to reach goals regardless of personal sacrifice.

• **Ability to withstand business reversals without quitting.**

Through perhaps disappointment, entrepreneurs are not discouraged by failure. They have the ability to use failures as learning experiences, so that similar problems can be avoided in the future, and have the attitude that setbacks are only temporary barriers to goals. This includes a strong capacity to build on successes.

• **Business and productivity/knowledge.** Entrepreneurs must understand basic principles by which a business survives and prospers. This means comprehending the role of management and responsibilities of employees to maintain a viable business. Although entrepreneurs must be in control of overall goals, they can't perform each task without help. Awareness of the functions of marketing, accounting, tax, financing, planning and

management, and how to deal with those, is therefore required. They must have a good level of understanding of the product or service.

• **Willingness to accept calculated risks.**

There must be an ability to identify risks and weigh their relative dangers, with a preference for taking calculated risks to achieve goals that are high but realistic. This is critical.

idea on a concept in a unique and different way. The entrepreneur must possess powers of both observation and imagination to form unique market ideas.

• **Sense of purpose.**

There must be a feeling of mission to motivate the person to go into business, and the activity must have meaning. The mission may be to make an attractive profit, to sell some necessary and unique product or service, or to develop ideas or skills without the constraints of others' expectations.

• **Human relations ability.**

Entrepreneurs have the ability to understand and interact well with people of varying personalities and values. This is important when dealing with employees, bankers, investors, partners, suppliers, or customers and is reflected in characteristics such as sociability, considerate, cheerfulness, cooperation, and tact.

• **Achievement orientation.**

Entrepreneurs have the desire to take on challenges and test abilities to the limit. Because entrepreneurs are objective thought, they build a "what if" scenario into the business plan, so that they anticipate problems and develop strategies to surmount obstacles in advance.

It is unrealistic to suggest that all successful entrepreneurs possess all the traits outlined. Many of the characteristics are interrelated and not all are necessary for business success, so do not be overly concerned if you feel you do not possess every one of these qualities. The key question is: How significant are the missing traits to your type of business and your business goals?

Identify and understand your personal strengths and weaknesses in the areas of management skills, product knowledge, and expertise. Once you have identified these areas, you are then in a much better position to compensate for weak areas by hiring employees, bringing in partners, or taking further training.

Douglas Gray LL.B., formerly a practicing lawyer, is a Vancouver-based consultant speaker and author of 16 best-selling books, including *The Complete Canadian Small Business Guide* (McGraw-Hill Ryerson), *Start and Run a Profitable Business Using Your Computer* and *Start and Run a Profitable Consulting Business* (both by Self-Counsel Press).

## THE TRAITS OF A



By Douglas Gray

# SUCCESSFUL ENTREPRENEUR

Contrary to the stereotype that entrepreneurs are gamblers or high-risk-takers, the risks involved are often moderate due to the amount of planning behind them.

• **Strong desire for independence.**

There must be a genuine desire to be one's own boss, free from external direction and control. That takes a unique willingness and a proven ability to be self-disciplined in sometimes isolated working conditions, and the ability to organize activities to reach personal goals. Successful entrepreneurs are not easily joiners by nature. They often prefer to network to make business contacts, rather than remain, or obtain useful information to solve problems.

• **Ability to handle uncertainty well.**

Entrepreneurs must have an ability to live with the uncertainty of job security. They must face many crises, take risks, and allow for temporary failures without panic. Successful entrepreneurs accept uncertainty as an integral part of being in business.

• **Ability to apply ideas in creative ways.**

Entrepreneurs have a strong desire to originate an idea or product, to develop something new to be innovative, to create something unique in import personally, disease, and

# Computer-based training: Is A Viable Alternative

by Stephen Bharali

**A**s in most 30,000 courses I was attending, an attendee, Jim, asked this question: "Why would you want to use client intervention where the DHCP server always assigns the same IP address to a client?"

The seminar leader thought for several minutes. Finally he replied, "I'm not sure. I'll have to get back to you on that one next morning."

During the break, I popped in my CBT Systems CD into Jim's computer. I scanned for the DHCP topics and there was the answer and background information. Jim noted "Cool, there's even a simulation where I can try interactive setup! My company has 10 employees requiring this course. That's \$30,000. This CD packs the same information and reuse."

A few weeks ago, I bumped into Jim. His company decided that computer-based training was a sensible alternative. He was amazed at the depth of offering from UNIX, C++, SQL, Visual Basic, Java, Web-Design, Lotus Notes, Oracle, Cisco networking, to the entire office application suite.

Computer-based training (CBT) has been around for years, but the old idea has a new face that will be the future of all training.

CBT Systems, the world's largest CBT provider, provides courses for a single machine, via a corporate intranet and over the Internet. As the communication bandwith improves, the courses will only become more intensive. The graphics and interactive simulations are good and getting better by the day. The actual computer environments are duplicated.

Now the classroom is as close as the nearest computer. It's possible to catch up with the endless upgrading this industry requires — on a ferry, at a hotel, or waiting for an appointment.

## The Format

The CBT Systems' courses follow a four-step model:

- 1 Concepts first — giving the underlying theory,
- 2 Demonstration — showing how the concepts are used,
- 3 Guiding the learner to apply new concepts, and,
- 4 Independent practice through simulations and coding exercises.

How does CBT Systems compare to instructor-led training at a commercial centre? It really depends. An experienced instructor who really knows the course material, the slides, exam tips,



Title: CBT Systems coursework

Author: Various

Publisher: CBT Systems Ltd.

Web: <http://www.cbtcs.com>

Cost: Varies

## Description:

A series of more than 400 self-study, computer-based course modules covering hundreds of computer topic areas. The courses can be offered on a single computer, over an intranet and the Internet. Student management software is also available. All major industry partners are represented, including Novell's CNE and Microsoft's MCSE and MCSD. CBT Systems develops the courses in conjunction with leading software companies, including Cisco, Lotus, Informix, Microsoft, Netscape, Novell, Oracle, Powersoft and Sun Microsystems.

Rating: B to A

(Generally the newer offerings are better)

and class discussion can't be matched. This is especially true in a college environment, where the course extends over several weeks.

But with classroom instruction in a commercial setting, there are time limitations. CBT training doesn't have that problem. The CDs provide a better organization than most books and an attention to detail not permitted with time-constrained classroom instruction. Complex areas are fully explained with graphics and demonstrations.

Each course is divided into a series of topic areas or lessons similar to the chapters in a book. These lessons begin with a thorough list of objectives and end with a summary. Each lesson is broken down into easily digestible sections, which are often grouped by sub-topic. Throughout each lesson, there are numerous questions to stimulate thought and keep up interest. Often the technical detail presented exceeds classroom instruction. This is especially important if the user is planning to write certification exams.

To review, the user can take the lesson exams. The questions are well designed and do consolidate the covered material.

### The User Experience

I found the software easy to install and quite intuitive to use. A series of on-screen buttons allow for easy movement forward or back. Users can check their progress or go to any subtopic for review. If they're on a busy schedule they can leave a bookmark so they can automatically return to where they left off in a lesson.

As far as difficulty is concerned, I found fewer errors in their earlier courses than their most recent offerings. Their error rating is definitely less than many of the books I reviewed, and instructor-led classes I've evaluated.

### Practice makes Perfect

For every hour spent in the CBT courseware, I recommend you spend two hours on a working system trying out what you learned. You would do the same if you took a regular class or self-studied using books.

As an educator, I advise 100 to 250 hours of study for any major topic area. It helps to go through each course three times: once to get an overview, the second time for details; the third pass for mastery and consolidation. Then spend some time on the actual system. For example, to study Unix, find a Unix system to experiment with the various topic areas, and your knowledge will be substantially enhanced.

### The CBT Market

Anyone in the computing industry can benefit. Computer-based training is a particularly cost-effective training alternative for organizations with large training needs. It's also worth considering for individuals and disciplined individuals. The cost is higher than self-study books, so weigh the benefits versus the cost.

Download the demos from the Web site (<http://www.captainsoft.ca/cbt>) to get a look and feel for the software—**III**.

*Stephen Rovak, BSC, is co-founder of the computing program at Capilano College, which is CPSI, Novell and Microsoft certified. He can be reached at [irovak@capilano.bc.ca](mailto:irovak@capilano.bc.ca).*

### Understanding DHCP

In a typical NT network, each computer requires an IP address (example: 191.192.2.19) to enable it to communicate with other computers. These addresses can be manually assigned and configured on each workstation or server end and then manually reconfigured if the computer is moved to another network. Manual configuration leads to conflicts addressed and incorrect addresses. A DHCP (Dynamic Host Configuration Protocol) server solves these problems. The workstation or server is automatically assigned a temporary IP address out of a pool of addresses (example: 191.192.2.191 to 191.192.2.192, 191.192.3.198 to 191.192.3.200) maintained by the DHCP server. In this example, the DHCP server manages six IP address pools, one set for each network segment or subnet. If the PC is moved to another network segment, it's automatically assigned another address that matches the network (example: 191.193.3.198). The important information here is that the address is temporary or leased to the client PC. So, without a special setup called "client reservations," there is no guarantee that the client will always receive the same address. Normally that isn't a problem. But, there can be special circumstances where the computer should always get the same address—for example, when a server is providing resources to client computers.

When a client interacts with another computer on a Microsoft network, it typically uses a network name (SBS100106) instead of the IP address. For actual communication to occur, the client needs the IP address. Name resolution is the process of translating the network name to an IP address. Another type of server called a WINS (Windows Internet Name Service) server can automatically provide this translation service to PCs on a network. PCs can fix the problem. An application server may have clients that are non-WINS enabled. This means they don't get a WINS entry to perform the name resolution. These clients use a local LMHOSTS file to resolve the NETBIOS computer name of the application server to its assigned IP address. A LMHOSTS file is a text file containing static IP addresses to NETBIOS computer name mappings. If the IP address of the server changes because it isn't reserved, then the name resolution will fail. That is, the client will not be able to communicate with the application server since the IP address obtained from the LMHOSTS file is incorrect.

Resolving an IP address on the DHCP server guarantees that the application server address will remain static and correspond to the LMHOSTS file used by a non-WINS enabled client.



by Chris Purcell

# Managing the Network Printing Monster

**L**ife before networks seemed so much simpler — one office computer, one printer, few problems.

But with technological advancements and reduced costs acting as a prodder, companies and printers started multiplying like bunnies. The pace hasn't stopped. Network and systems administrators often feel more like network managers trying to control an extended family.

One of the most challenging obstacles in this area involves the management of printers and other document-related tasks. Configuring and managing the increasing stack of printing systems has often been a frustrating exercise for IS and IT managers. The issue has slowly crept to the IS function; there is a critical need for effective printer management software tools. Fortunately, solutions are being developed. Software is now available to manage existing network printing environments, and network environments are beginning to incorporate technology. But it hasn't been easy.

Although network printers are everywhere, processing all this information is still not being conducted on a stand-alone system. Just as every platform, operating system and even developer environments have spawned mixed systems and incentive technology migration, the same situation exists in the printing environment. Today's networks are filled with a wide array of printers and output devices, from personal and workgroup desktop printers to larger office and production printers.

Deploying the right printer service solution gives administrators the power to monitor and manage this multi-headed network printer.

## This Distributed Environment

The first consideration in employing management tools revolves around the evolution of network printing systems as a nerve center of the office. The installed base of network printers is supporting the growing demand for distributed printing. Workers are printing on more powerful printers, offering more features, including faster output speeds, higher volume capabilities and finishing accessories, such as collating and stapling. In addition, the rising popularity of the Internet and business presentation software has sparked demand for color printing to print Internet pages and presentation graphics.

Administrators also view the network as a means to combine printing capabilities with other document processing tools such as fax and scanning. That emerging trend is producing a new generation of digital systems that deliver broader functionality, adding fax and wide-area copying capabilities to network printing and finishing. These systems will be available to users through a common software interface.

## Network Topology

The second major consideration is network topology. Existing networks, generally mixed environments, are changing to new infra-

structures where and Web technologies and corporate intranets become more widespread. All organizations must assess their needs and develop migration strategies that cautiously navigate these shifting waters.

A third consideration is deploying a print service infrastructure procurement style and methodology. Many organizations want to retain the flexibility of buying network printers from several preferred vendors. The growing and increasingly diverse installed base of network printers and evolving network environments requires printer management solutions that mitigate the administrative burden associated with printing.

A single solution is not likely to satisfy every administrator's needs. Solutions must be provided that serve organizations, ranging from those with diverse platforms to those with a more homogeneous environment. But they do exist today, and can make a network administrator's life more productive and less frustrating.

## The Software Is Crucial

Software is available that allows administrators to remotely configure, monitor and manage all printers on local and wide area networks in a multitude of networked environments. Each printer configuration can be password-protected. Detailed ranges display the serial configuration of supported networked printers, and include unfilled features like paper traps and mailbox options. At the click of a mouse, administrators have access to such information as printer memory and installed fonts.

Corporate intranets and the Web can be used as common platforms to deliver printer management functionality that extends beyond existing tools. Using a standard Web browser, administrators can connect, configure, determine status and troubleshoot printers from almost anywhere.

This new generation of software provides a faster and more productive way to install and upgrade software on all-work client PCs. Using the Web-based model of distribution, administrators simply alert users to new software and upgrades, and direct them to the appropriate Web site for downloading the appropriate files. Or, they can download the file to their workstation, and then seamlessly administer the printers as needed to take full advantage of any software enhancements.

Choose your technologies carefully. It can mean the difference between the simple life and carrying on as an overworked network nanny.<sup>1</sup>

**Chris Purcell** is the director, North American product marketing, for Xerox Channel Group at Xerox Canada Ltd., developer of *CentraWare*, a portfolio of printer management software products designed to manage networked printers in a multi-vendor network environment.

# Pocket HTML Guide is Hip

By Sean Corcoran

Title: *Hip Pocket Guide to HTML 4*

Author: Ed Tittel, James Michael Stewart, and Nakanya Pitts

Publisher: IDG Books

ISBN: 0-7645-3156-4

Price: \$21.99

Rating: A



Okay, I'll admit it: I tried to fit this book into my hip pocket. In actuality, it's a bit on the large side for that, but the title sums up the concept of the book, even if the size is technically a bit off.

Instead of being a comprehensive and weighty manual that details every minute aspect of HTML 4, the "Hip Pocket Guide to HTML 4" gets down to the important stuff in short order. The beginning of the book contains a bit of history of the Web, and a quick primer on the structure of HTML documents. The rest of the book is dedicated to the tags used in HTML 4, the ways they can be used, other tags they can be used between, and which attributes can be modified inside the tags.

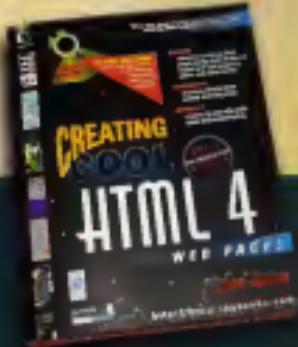
The good thing about the format of the book is the variety of methods available for information retrieval. By default, the tags are arranged alphabetically by tag function (structure, text, list, etc.), so similar tag types are in one area. However, the index also lists specific tag attributes; if you remember a tag with "ALIGN" in it, you can look to see a list of all of the tags that feature that modifier. In addition, an alphabetical index of all of the tags, regardless of function, appears in the inside front and back cover, with pointers to the page number containing the relevant information.

Inside the text, each tag has its own page, which gives a definition of the tag's purpose and lists all related attributes for the tag, and relevant contexts. Suggested style, usage and examples are given for each of the tags.

Also included near the back of the book is a list of 150 characters and their inclusion codes, so people who've always wanted to put stuff like @!@#%\$ into Web pages simply have to look at the chart for the relevant information. A rough hexidecimal conversion chart for color values also appears in the book, as does a short list of suggestions for useful Web-related software and popular Web sites.

The bottom line? The tag references, and the multiple methods of accessing it, make this an invaluable addition to the library of both the beginner and the experienced HTML coder. The extra charts and lists are a great bonus.

As for the title — you could always try a different pair of pants.



## Web Book offers Style over Substance

By Sean Corcoran

Title: *Creating Cool HTML 4 Web Pages*

Author: Dave Taylor

Publisher: IDG Books

ISBN: 0-7645-3201-4

Price: \$42.99

Rating: C

"Creating Cool HTML 4 Web Pages" instead seems to be aimed squarely at the Web neophyte.

Although the number of Web-literate people is on the increase, there will always be starry-eyed beginners who have waded a few times and seen pages with tricks that really impressed them. Such is the emphasis of this book.

The downside: In among the book at this market, author Dave Taylor winds up creating the perfect manual for people who value style over substance. Because of this, the book will doubtlessly spawn a new generation of "cool" but ultimately pointless Web pages. A further annoyance is the almost total lack of formatting in the HTML snippets.

To its credit, the book covers a lot of ground, from basic Web design to more advanced features like tables, frames, and javascripting. The writing style is very conversational, involving the reader immediately. Taylor also discusses common mistakes in code samples and then explains why the complex stuff's work as anticipated.

The CD-ROM that comes with the book includes both Netscape Navigator 4 and Microsoft Internet Explorer 4, and a number of shareware tools and utilities for creating "cool" Web pages.

Despite my reservations about the annoyance factor for more experienced users, this book is a potential gold mine for Web novices who have been wondering, "How did they DO that?" ☐

Sean Corcoran ([sean@qc.ca](mailto:sean@qc.ca)) is CCW's Lab Test Editor.

# new PRODUCTS

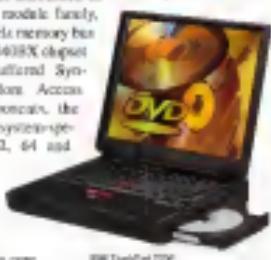
## Kingston announces PC 100-compliant memory

Kingston Technology Co. has announced its PC 100-compliant memory module family, designed for the new 100MHz memory bus architecture of Intel's new 440BX chipset.

Using 100MHz ultrafast Synchronous Dynamic Random Access Memory (SDRAM) components, the modules will be offered in system-specific configurations of 32, 64 and 128MB densities.

Prices for modules will range from US\$170 to US\$638, depending on configuration and capacity.

See <http://www.kingston.com>



IBM ThinkPad 770E

## Compaq introduces 14.5-inch flat-panel monitor

Compaq Canada Inc. has introduced the 14.5-inch TFT450 Flat Panel Monitor, priced at \$2,992, along with two 17-inch CRT monitors—the Compaq VT5 Color Monitor and the Compaq VT5 Color Monitor, priced at \$872 and \$825, respectively.

Compaq says it expects to accelerate the transition of the standard business monitor size from 15 inches to 17 inches.

## 3Com Canada has small business OfficeConnect

3Com Canada of Burlington, Ont., has announced a 10-user version of the OfficeConnect ISDN LAN modem—an all-in-one access networking solution for small businesses or home offices with multiple users.

3Com says small businesses can simplify their networking by equipping their 10-user

## Creative Technology adds powerful PCI audio systems

Creative Technology Ltd. has announced two new high-performance PCI audio systems aimed at the quality PC audio market.

The Sound Blaster PC164 has an estimated street price of \$149.95, and the Creative Easysync Audio PCI sells for \$99.99. Also announced was the PCWorks FourPoint Surround speaker set, aimed at optimizing the 3D sound projection ability of the PC164.

According to Ben Wong Hion, CEO and president of Creative Technology, "These new products are the first in a series of upcoming PCI solutions from Creative that will leverage our expertise in audio to deliver truly innovative sound and solutions."

[www.creativetechnology.com](http://www.creativetechnology.com)

Since establishing the de facto standard for computer audio with its Sound Blaster line of audio cards, Creative has gone on to develop one of the most impressive research and development capabilities in either the computer or consumer electronics industries. The new products reflect this capability, with impressive audio features at a modest price. The new PC164 offers 64 voices of wavetable synthesis, support for two or four speaker output configurations, as well as the new PCWorks FourPointSurround. The PC164 uses very little of the PC's main processor power, relying mainly on its onboard chipset.

See <http://www.soundblaster.com>

## IBM adds ThinkPads

(MD)—IBM Canada Ltd.

has introduced the ThinkPad 770E and ED, two new ThinkPad 380XD models, and the ThinkPad 600 line of notebook computers to the Canadian market.

Canadian prices for the ThinkPad 770E and 770ED start at \$6,499. The new 380XD models start at \$3,999. Prices for the new ThinkPad 600 series begin at \$4,399.



IBM ThinkPad 380XD

## Toshiba of Canada refreshes Libretto notebook line

Toshiba of Canada, Information Systems Group (ISG), has unveiled the 2.3-pound Toshiba Libretto 100CT series next-generation ultra-light system. Priced at \$3,999, it includes a 166MHz Pentium processor with MMX technology, a 3.0GB hard drive and 32MB of RAM.

The Toshiba Terra 700DVD notebook has a Pentium II 266MHz processor, and 64MB RAM expandable to 192MB. It's priced at \$9,099.

The Satellite Pro 490CDT (\$5,849) includes a 233MHz Pentium II and features a 12.1-inch TFT display. The Satellite Pro 490XCDT (\$6,599) is powered by a 266MHz Pentium II, and boasts a 13.3-inch TFT display. Standard with both systems are 32MB RAM, a 3.0GB hard disk drive, and a 20X CD-ROM.

See <http://www.toshiba.ca>

## iOS ships Auto Switch surge protector

International Office Systems of Richmond, B.C., is shipping the Auto Switch surge protector, designed to work with the "sleep" mode in modern PCs. The product saves energy, plus wear and tear on computer equipment. When the CPU is plugged into the master outlet, it also switches off peripherals plugged into the three switched outlets. Two outlets on the unit provide a continuous power supply for anything that might need power all the time.

Suggested retail price is \$49.95. Call (604) 300-1100.



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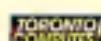
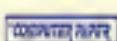
Schedule:	10:30 am	Registration
	11:30 am	Lunch
	12:30 pm	Shogun start
	6:00 pm	Dinner /Trophies & Prizes Presentation / Lucky Draw
Fee:	Golfer	\$150 member / \$200 non-member Includes green fee & cart, lunch, dinner, full use of clubhouse facilities and lucky draw.
	Dinner Only	\$50 member / \$75 non-member

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## Ditek appoints VP

Richardson Hill, Ont.-based Ditek Software Corp., a developer of professional computer-aided design and drafting (CADD) software for PCs and workstations, has appointed Gene Rose vice-president, business development.

Based in the Manchester, N.H., office, Rose will be responsible for expanding Ditek's worldwide focus on building relationships with developers of geographic information systems (GIS). He will also lead the company's U.S. operations.

Rose was the founder and former president of MPN Components, a digital mapping and global positioning company, bringing 18 years of experience in the GIS industry to Ditek. He also worked for SoftDisk as director of mapping products, and led GIS projects for the Government of Canada's Department of Public Works and Government Services. He holds a PhD in engineering systems from the University of New Hampshire, a masters degree in civil engineering, and a bachelor of science in civil engineering.

"Right now Ditek is in one organization that is in an ideal position to capitalize on the rapid changes in the industry, and I look forward to taking part of the company as it expands into new territory," said Rose, in a statement.

## Symantec vice-president sits on Archer's board

Archer Enterprise Systems Inc. (Archer ESI) has appointed Christopher Colosi, vice-president of Symantec's Remote Productivity Solutions Business Unit, to its board of directors.

Colosi is currently responsible for the worldwide product development business for Symantec's pcAnywhere, WinFax and ACT. Previously, Colosi served as general manager of Symantec's Remote Access Business Unit

based in Melville, NY, where he managed the development, testing, marketing and support of all remote communications products.

Deanne Isaacs, chairman of the board for Archer, said, in a statement, "Colosi's involvement will help to solidify the strategic partnership between Archer Enterprise Systems and Symantec, as the two companies work together to develop products for the growing enterprise contact management marketplace."

Prior to his work at Symantec, Colosi was national manager systems engineer at Unify Corp. and senior program analyst with Computer Associates. He earned a bachelor of computer science from the State University of New York and studied executive training at the Wharton School of Business. He has more than 15 years of computer industry experience, and holds several copyrights for software innovation.

## PC Docs Inc. gets president

Toronto-based PC Docs Group International Inc. has announced Brian Zanghi is the new president of its subsidiary, PC Docs Inc.

The company is a provider of enterprise document management solutions. Zanghi will report directly to Robert Oster, chairman and CEO of PC DOCS Group International.

A three-year veteran of the company, Zanghi most recently held the position of vice-president of North American sales and was a key member of the senior management team charged with developing and implementing PC Docs' business strategy. Prior to that he was vice-president of Eastern operations. Zanghi served for several years with Interleaf Inc., another document management vendor, and was with Digital Equipment Corporation for 10 years.

Zanghi will focus on the company's worldwide operating plans and marketing strategies, on expense control, and on growing profits and revenues from the company's new Internet-based and client/server software.

## Scott Butterworth joins ALEA

Richardson Hill, Ont.-based The ALEA Group has hired Scott Butterworth as director of retail sales.

In that position, he will work with high-technology clients to develop sales merchandising, sales demonstration and event marketing programs. **BB**

# Calendar

**June 8-9 — Vancouver**  
July 20-21 — Calgary  
**Aug. 10-11 — Montreal**

### Understanding Computer Networks

Contact:

Global Knowledge Networks

<http://www.globalknowledge.com>

**June 10 —**  
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**Vancouver**  
<http://www.b-on.ca>

**June 14-17 —**  
**Canada/Spring**  
Adams  
<http://www.caindex.com>

**June 18-19 —**  
**ITIL Problem Management Practitioner**  
Toronto  
Contact: Pink Report  
<http://www.pinkreport.com>

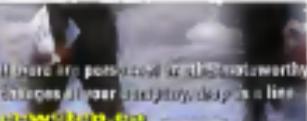
**June 19-20 —**  
**Year 2000, Testing, Strategies and Solutions**  
Chicago  
<http://www.dci.com>

**July 8-10 —**  
**Canada/Cruise**  
Toronto  
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**Sept. 8-10 —**  
**Support Services Conference & Expo**  
San Francisco  
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**Oct. 8-9 —**  
**CIO&R Annual Trade Show and Demonstration Center@#800**  
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# Nifty Numbers

By Leslie Anne Arrand and Dianne Lepo

## Encryption Software

by Leslie Anne Arrand and Dianne Lepo

Encryption software encompasses such technologies as firewalls, PINs, passwords, cryptographic algorithms and secured gateways. Specifically, encryption refers to the translation of one character string into another by means of a cipher, translation table, or algorithm. The translated information then becomes meaningless to anyone without the decoding mechanism. Encryption is a hot topic. The need to secure your network from both external and internal users has resulted in data security becoming a crucial element in an organization's information technology infrastructure plan. It has become important to all organizations, large and small.

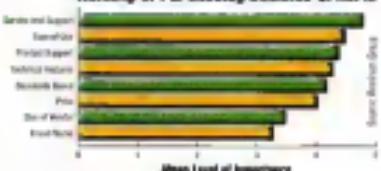
Companies involved in the design of encryption software have been experiencing a boom. With more and more technology companies becoming involved in this growing area of technology, how is a new company going to distinguish itself from its competition?

A recent Branham study of 100 North American companies from many different sec-

tors, including financial, pharmaceutical and healthcare, assessed the need for enterprise-wide security products and services, as well as determined the importance of the various vendors in this market. One element of the study rated purchasing criteria for enterprise-wide security products.

Based on a scale of 1 to 5, where "1" is "not at all important" and "5" is "very important," respondents to the study were asked to rate certain criteria relating to purchasing decisions. The following chart displays the results. As in many areas of technology, the most critical element in the decision-making process for purchasing enterprise-wide security products are service and support, followed by ease of use and product support. Technical features are rated fourth. Unfortunately for those companies trying to distinguish themselves by their reputation, brand name is rated the lowest

Ranking of Purchasing Decisions Criteria



among the list of purchasing criteria.

New companies will continue to emerge in this exciting sector of the information technology industry, especially when on-line purchasing increases in popularity. In order to be successful in this area of technology, companies will have to develop top-of-the-line products that are backed up with a high level of service and support. The good news is that due to the lower level of importance placed on brand name, the market is open to all.

Leslie Anne Arrand and Dianne Lepo are consultants at The Branham Group Inc., an Ontario (http://www.branham.ca) — an international marketing and management consulting firm with a stated commitment to "Delivering competitive advantage to the IT industry." Phone (613) 743-2282; or fax: (613) 743-4990.

## Reader Poll

### Last issue, we asked:

When it comes to YOUR customers, what is the HIGHEST criterion for their ink-jet purchases?

### You said:

11% Quality of black printing	9% Speed of printing
35% Quality of color printing	46% Price of the printer.

### This issue:

Advances in CRT display technology have been keeping along, and we're now seeing larger resolutions with good-quality display of images hitting the market at attractive prices.

### Our question to you:

For your customers, which is the MOST important concern when it comes to buying a computer monitor?

- Easy on-screen controls
- A very low price
- Energy-saving technology
- A flat-screent display
- A big screen (17 inches or more, diagonally)

## Win FREE software!!

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Tony Shatley, president, Oxford Computer Consulting and Sales, Inc., Thibierge, Ont.

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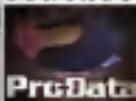
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